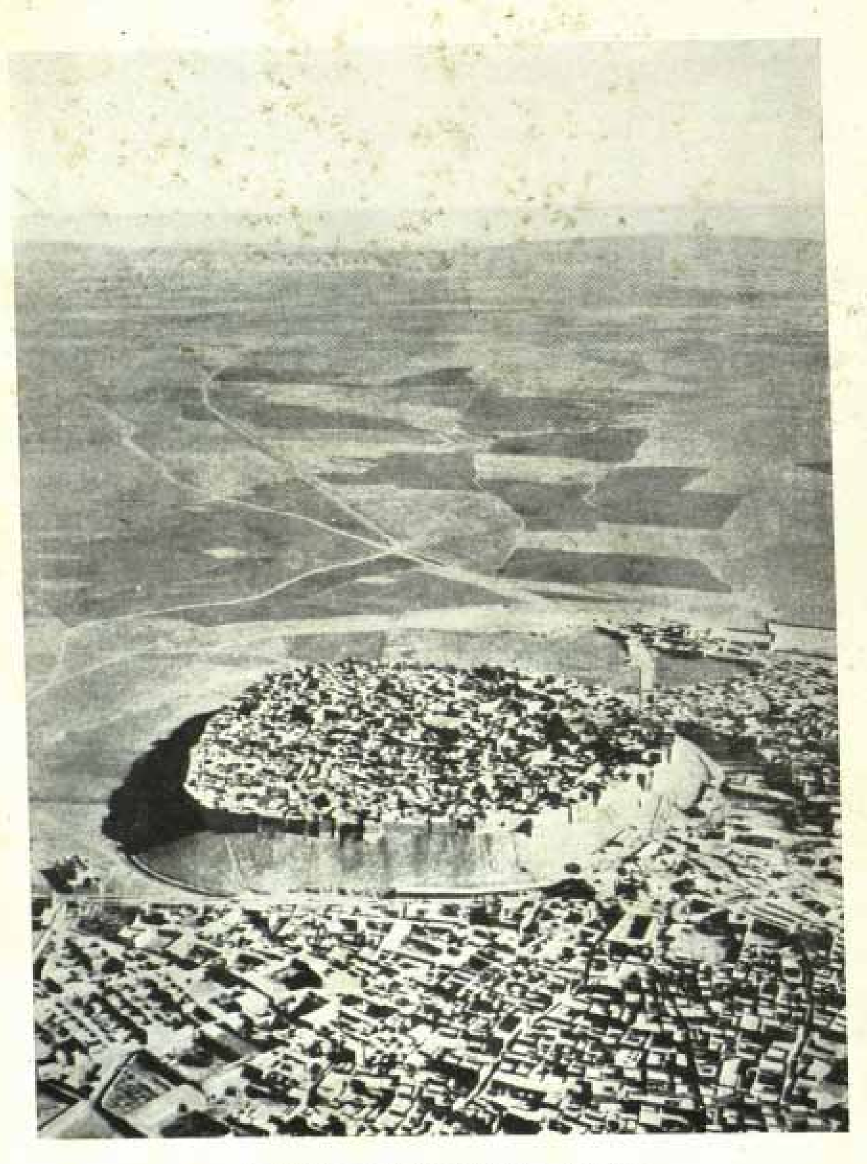


1. *Erbil, a city for five thousand years*

B.R. 524 (RESTRICTED)
GEOGRAPHICAL HANDBOOK SERIES
FOR OFFICIAL USE ONLY

IRAQ
AND THE
PERSIAN GULF

SEPTEMBER 1944



NAVAL INTELLIGENCE DIVISION

This volume was produced and printed for official purposes during the war 1939/45

PREFACE

In 1915 a Geographical Section was formed in the Naval Intelligence Division of the Admiralty to write Geographical Handbooks on various parts of the world. The purpose of these Handbooks was to supply, by scientific research and skilled arrangement, material for the discussion of naval, military, and political problems, as distinct from the examination of the problems themselves. Many distinguished collaborators assisted in their production, and by the end of 1918 upwards of fifty volumes had been produced in Handbook and Manual form, as well as numerous short-term geographical reports. The demand for these books increased rapidly with each new issue, and they acquired a high reputation for accuracy and impartiality. They are now to be found in Service Establishments and Embassies throughout the world, and in the early years after the last war were much used by the League of Nations.

The old Handbooks have been extensively used in the present war, and experience has disclosed both their value and their limitations. On the one hand they have proved, beyond all question, how greatly the work of the fighting services and of Government Departments is facilitated if countries of strategic or political importance are covered by handbooks which deal, in a convenient and easily digested form, with their geography, ethnology, administration, and resources. On the other hand it has become apparent that something more is required to meet present-day requirements. The old series does not cover many of the countries closely affected by the present war (e.g. Germany, France, Poland, Spain, Portugal, to name only a few); its books are somewhat uneven in quality, and they are inadequately equipped with maps, diagrams, and photographic illustrations.

The present series of Handbooks, while owing its inspiration largely to the former series, is in no sense an attempt to revise or re-edit that series. It is an entirely new set of books, produced in the Naval Intelligence Division by trained geographers drawn largely from the Universities, and working at sub-centres established at Oxford and Cambridge, and is printed by the Oxford and Cambridge University Presses. The books follow, in general, a uniform scheme, though minor modifications will be found in particular cases; and they are illustrated by numerous maps and photographs.

The purpose of the books is primarily naval. They are designed first to provide, for the use of Commanding Officers, information in a comprehensive and convenient form about countries which they may be called upon to visit, not only in war but in peace-time; secondly, to maintain the high standard of education in the Navy and, by supplying officers with material for lectures to naval personnel ashore and afloat, to ensure for all ranks that visits to a new country shall be both interesting and profitable.

Their contents are, however, by no means confined to matters of purely naval interest. For many purposes (e.g. history, administration, resources, communications, &c.) countries must necessarily be treated as a whole, and no attempt is made to limit their treatment exclusively to coastal zones. It is hoped therefore that the Army, the Royal Air Force, and other Government Departments (many of whom have given great assistance in the production of the series) will find these Handbooks even more valuable than their predecessors proved to be both during and after the last war.

J. H. GODFREY
Director of Naval Intelligence
1942

The foregoing preface has appeared from the beginning of this series of Geographical Handbooks. It describes so effectively their origin and purpose that I have decided to retain it in its original form.

This volume has been prepared by the Oxford sub-centre of the Naval Intelligence Division under the direction of Lieut.-Colonel K. Mason, M.C., M.A., R.E., Professor of Geography in the University of Oxford, and is the work of a number of contributors, whose names are given on page 643.

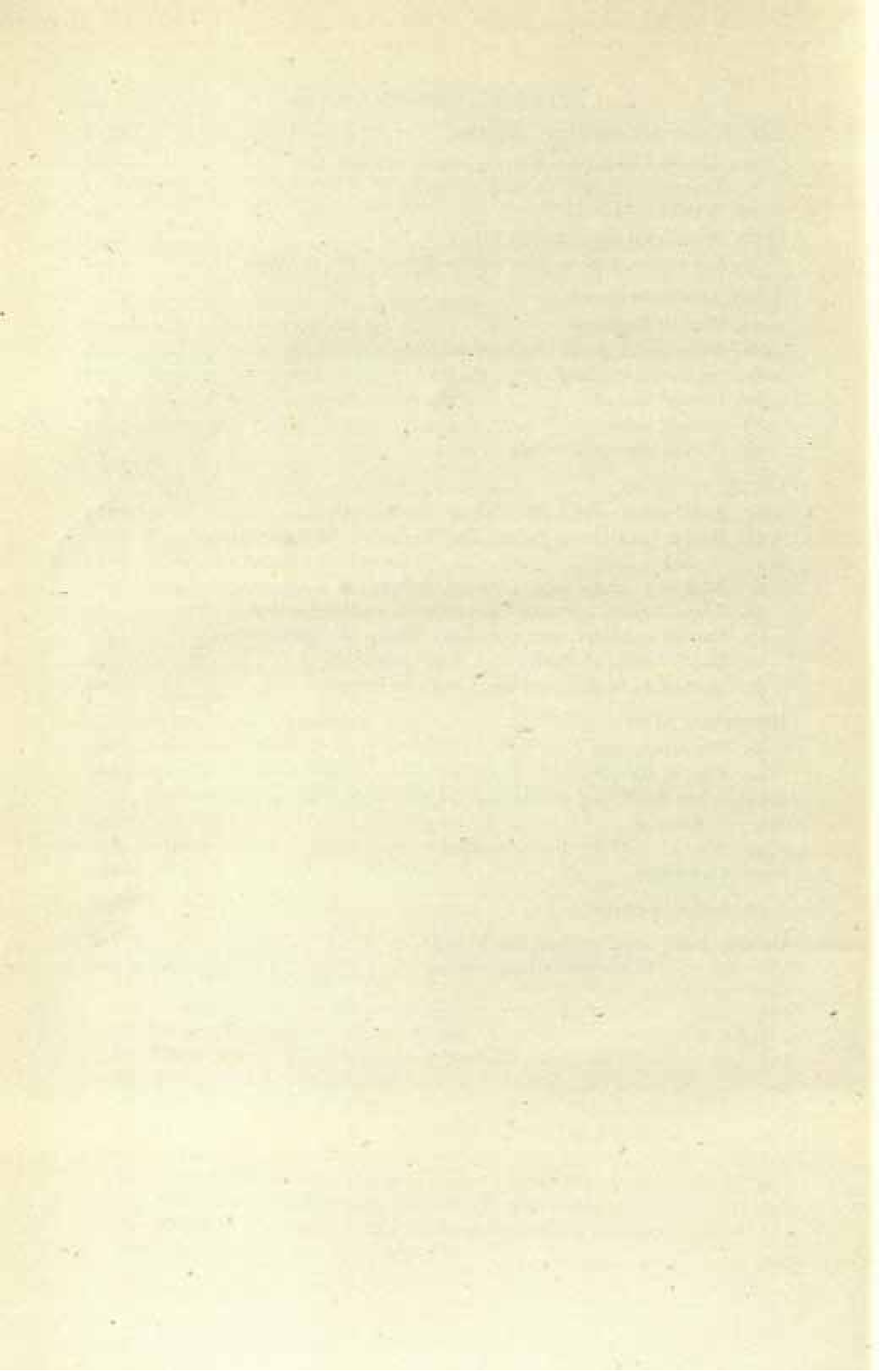
E. G. N. RUSHBROOKE
Director of Naval Intelligence
SEPTEMBER 1944

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CHAPTER I

INTRODUCTION

MODERN Iraq is the creation of British policy following the defeat of Turkey in the Great War of 1914–1918, and was formed out of three vilayets of the Ottoman Empire—Basra, Baghdad, and Mosul. The first two comprised the delta lands which were Arab by race, speech, and culture; but Mosul vilayet in the north in its geography, history, and people differed notably from the others. Although Great Britain accepted the mandate in April 1920, it was uncertain until 1926 that the Mosul vilayet would remain in Iraq. By the Treaty of Ankara in that year the Turks agreed to its incorporation in the State of Iraq, which in 1932 was emancipated from mandatory tutelage to become a sovereign state, linked to Great Britain only by treaty.

Position, Boundaries, and Extent

Iraq, lying between the plateau of northern Arabia and the mountain edge of south-west Persia, forms a lowland corridor between Syria and the Persian Gulf. It is a passage between East and West. Though almost wholly north of latitude 30° N., it is hot in summer, and with its low rainfall would be as arid as neighbouring Arabia but for its two great rivers, the Euphrates and the Tigris. It is these rivers which have drawn people from south, west, and north to settle in and cultivate the land, and it is these people who built up one of the great civilizations of the ancient world.

The boundaries between Iraq and her neighbours—Turkey, Persia, Kuwait, Saudi Arabia, Transjordan, and Syria—most of them also parts of the former Ottoman Empire, were gradually settled between 1922 and 1937. The boundary with Turkey was determined by the Treaty of Ankara in 1926 (p. 311) and demarcated in 1927. It leaves the Tigris near Pesh Khabur, follows the Khabur and its tributary the Hazil Su north-eastwards into the mountains, and then turns east, generally following a succession of difficult watersheds, but descending to valleys to cross the rivers which enter Iraq from the north—the Khabur and the Great Zab with its northern tributaries. East of the Rubar-i-Shin tributary the boundary turns south across the Şemdinan Su to the Rubar-i-Haji Beg and follows this river to its source in the Persian watershed. Though not impenetrable, this northern frontier is crossed only by difficult tracks used by shepherd

tribesmen in their seasonal migrations, and it is impassable over long stretches, particularly in winter.

The boundary with Persia is that which was agreed between Turkey and Persia in the Treaty of Erzurum in 1847, demarcated by a Boundary Commission in 1913–1914, and reaffirmed by an agreement between Iraq and Persia in June 1937. It follows a general south-south-easterly direction along high watersheds, rarely passable, and broken only once by a tributary of the Little Zab until that river enters Iraq from Persia. It then follows this river and the Baneh tributary eastwards for about 18 miles, and by an irregular course encloses within Iraq territory the upper basin of the Qala Chulan tributary of the Little Zab, and the northern tributaries of the Diyala. The Diyala is reached at a defile 12 miles east of Halabja, and the boundary then keeps roughly parallel to it, following the crests of foothills to the east of it and crossing its left-bank tributaries at right angles. At the Ab-i-Naft, 17 miles to the south of Khanaqin, the boundary changes its character. For some 200 miles it follows the southern edge of Persian Luristan, often bordering the Iraq plain. The boundary between Iraq and Persian Arabistan is arbitrary, drawn to leave the marshes on the left bank of the Tigris to Iraq and the Hawiza grazing-grounds bordering the Karkheh river to Persia. The Shatt al Arab is reached at Saiyid Raqir, and thence the boundary follows the low-water line on the north bank to the mouth, but leaving the anchorage opposite Mohammerah to Persia. The frontier with Persia is formidable. Only one easy route crosses it, that by the Diyala, Khanaqin, Qasr-i-Shirin, and the Tak-i-Gireh pass to Kermanshah. Farther north two difficult roads lead through Penjwin to Hamadan and through Ruwandiz to Urmia. Elsewhere even mountain tracks are rare. South of the mountain zone passage of the frontier is hindered by vast expanses of soft desert and marsh, but the waterway of the Karun gives easy access.

The southern and western frontiers differ entirely from the foregoing. There are no obstacles save those of desert conditions, and generally the boundaries are arbitrary lines drawn for administrative convenience. That with Kuwait, which was accepted by the British Government in April 1923, alone makes some use of natural features. From the junction of the Khors Zubair and Abdulla on the coast it goes west to the Batin depression and follows this south to its tributary, the Shaib Auja. The boundary with Saudi Arabia was defined by the Treaty of Mohammerah and a subsequent protocol in 1922, but has not been demarcated. West of the mouth of the

Shaib Auja is a diamond-shaped area of neutral country, known as At Tawal, defined by straight lines joining the Shaib Auja and the wells of Amghar, Uqubba, and Ansab. In this area, which has important wells, both Iraq and Saudi Arabia enjoy equal rights. From Ansab the boundary passes direct from well to well: Jumaimu, Athamin, Lifiya, Maaniya, Judaidat Arar, Mugur an Naam, and thence to the highest point of the Jabal Anaiza.

The Transjordan border, defined in 1932, goes north-north-west from Jabal Anaiza to the Syrian border near Jebel et Tenf.[1] This, defined in the same year (p. 321) and delimited in 1933, is an arbitrary line going north-east from the neighbourhood of Jebel et Tenf to the Euphrates immediately below Abu Kemal. North of the Euphrates the frontier line was fixed with more care and takes an irregular course north to the Jabal Sinjar, which, excepting part of its western extension the Jebel Jeribeh, is in Iraq. Thence the border turns north-east through Tel Kotchek to the Tigris at Pesh Khabur and follows the river a short distance north to the junction of the Khabur.

Within these limits Iraq has an area of approximately 175,000 square miles, of which about one-third is covered by the western and southern deserts. The area commonly given in books of reference, 116,000 square miles, refers to the period before the definition of the desert frontiers, and by excluding the deserts west and south of the Euphrates gives a better notion of the habitable area of Iraq. But even the smaller figure includes great areas of desert, particularly in the Jazira of north-western Iraq—the region between the Tigris and Euphrates above Baghdad—which can never be extensively inhabited. The actual area of the State of Iraq is nearly twice that of England, Scotland, and Wales, whereas its population of about four millions is but a twelfth.

Geographical Divisions and Regional Terms

The three geographical divisions of Iraq—the southern and western deserts, the Euphrates–Tigris lowland, and the Kurdish mountains—are the direct consequence of its geological history, which is described early in Chapter II. The southern and western deserts end at the Euphrates escarpment; the Kurdish mountains begin where the sedimentary rocks have been tightly folded into high mountain ranges. Into the central lowland pour the silt-laden waters of the two rivers and their tributaries, building up the land behind the barrier of the delta of the Persian Karun. The characteristics of

[1] See note on the spelling of names, pp. 11–12.

these rivers subdivide the lowland into the delta lands, the Jazira, and the Assyrian plains and foothills, each differing from the others and each bearing on the customs, habits, and outlook of their

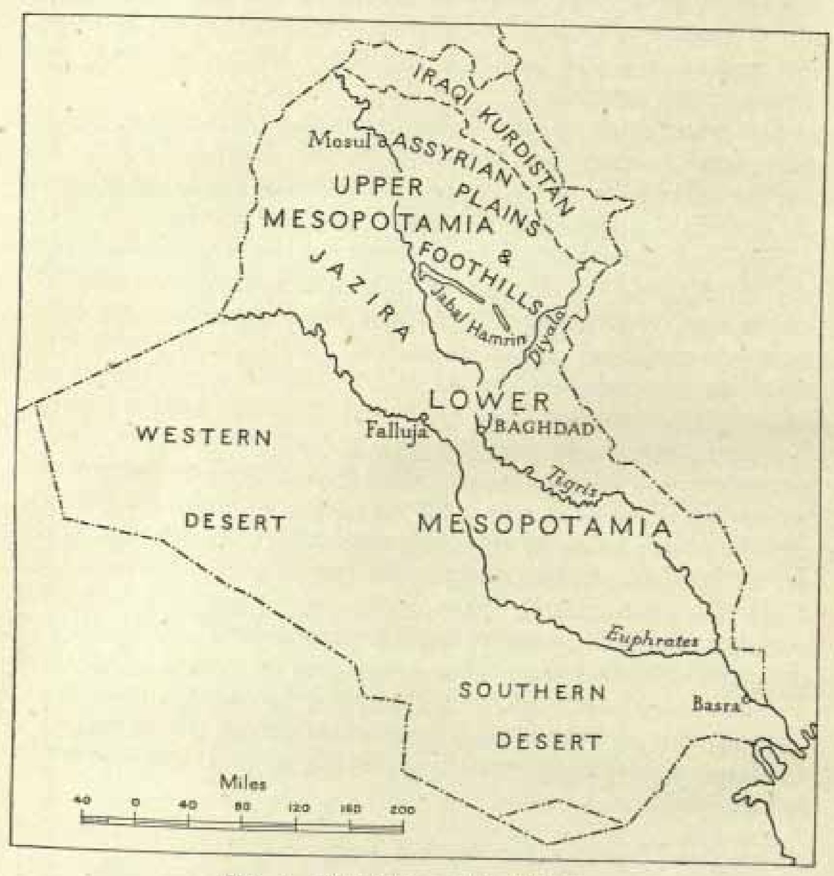


FIG. 1. *Main Geographical Regions*

populations and affecting their history. A knowledge of the river regimes and of the regions is therefore fundamental to a study of the people.

The terms adopted for the regions need explanation. The names in common use are perplexing because their connotation varies widely at different periods and with different authors. *Mesopotamia* in early classical times meant the whole region of the two rivers from the foothills of the Turkish Taurus to the Persian Gulf; later it was

confined to the region north of the delta lands—the Jazira of the Moslem period—and *Babylonia* was used for the delta lands. In Romano-Byzantine times the term Mesopotamia was restricted to that part only of the northern region which formed a province of the Roman Empire (p. 231), mostly outside the modern kingdom of Iraq. In very recent times, and for the first twenty years of the present century, it was the commonest term in western Europe for the country as a whole in its earliest classical sense.

The geographical terms used by early Moslem Arabs were *Al Iraq* (the 'cliff' or 'shore') for the delta lands, and *Jazira* (the 'island') for the region between the two rivers north of the delta and south of the Taurus foothills. These terms also became the administrative names of two wider provinces, the boundary between which was a line through Haditha and Tikrit and along the Jabal Hamrin. In Ottoman times the terms were not used officially and among the tribesmen they became indefinite regional terms, more or less reverting to their original meaning. The Jazira remains so to-day, but 'Iraq' has been adopted for the name of the modern state, a political creation which includes the 'Lower Jazira' of some authors, the outer Kurdish mountains, and the deserts beyond the Euphrates. The term Iraq has thus come to have a political rather than a geographical significance.

To avoid confusion with this political conception in the regional description of the land, the central lowland has been divided in this book into Lower and Upper Mesopotamia, as during the War of 1914–1918, the first including the delta lands, the second comprising both the Jazira of Iraq and the Assyrian plains and foothills. In the history chapter the term Mesopotamia has been used in its widest historical sense down to the period of the Moslem conquest. From then onwards 'Iraq' has been used conveniently, if incorrectly, for the whole area covered by the modern state, southern and northern Iraq being divided approximately by the lower Diyala and a line westwards from Baghdad. Thus southern Iraq approximately corresponds with Lower Mesopotamia and the southern desert, as the terms are used in the regional description of the land, and northern Iraq includes the western desert and Iraqi Kurdistan as well as Upper Mesopotamia. 'Central Iraq' is occasionally used for the heavily cultivated area near the dividing line.

The term 'Jazira' is used throughout for the region between the two rivers north of a line from Baghdad to Falluja. Beyond the boundary the 'Syrian Jazira' is used. The 'Assyrian plains and

foothills' cover the region north of the Jabal Hamrin, east of the Tigris and bounded on the north-east by Iraqi Kurdistan. The term has been chosen because the three plains of Mosul, Erbil, and Kirkuk and the low folded foothills in their neighbourhood were the heart of the ancient Assyrian Empire. It thus has no connexion with the so-called Assyrian Nestorians of modern times. 'Kurdistan' is a term that first occurs after the Moslem conquest and belongs to the mountain region of the Kurds, north and north-east of the Assyrian plains and foothills, and reaching far into Turkey and Persia. That part of it within Iraqi boundaries is properly Iraqi Kurdistan, but Kurdistan alone is used when the meaning is clear.

The Persian Gulf

In Chapter II a brief account of the recession of the head of the Persian Gulf in historical times is given. To-day the Karun is pushing its delta seawards at the rate of about 2 miles a century, while most of the sediments carried by the rivers of Iraq are being deposited behind the Karun delta. For a correct understanding of the references by classical authors and of early history, an attempt has been made to deduce the position of the gulf-head at different periods (fig. 14).

The northern and southern shores of the gulf do not belong to Iraq, but the strategic position of Iraq is so dependent on this sea and air corridor, and British interests in Iraq are so interwoven with those in the Persian Gulf, that a short account of its shores has been given (Chapter III).

History

Mesopotamia, situated on the flanks of the great land-masses of western Asia and of the Arabian peninsula, yet with easy access to the Mediterranean through Syria and with a direct sea-exit to the Persian Gulf, has played a double part in the general history of mankind. It has provided a route of passage for great empires and a breeding-ground of civilization by cross-fertilizing their racial and national cultures. The myth which places Eden within the lands of the two rivers is justified by the remarkable development of civilization in Babylonia from the fourth millennium B.C. onwards. Mesopotamia, thanks to its peculiar and central situation, has a better claim than Egypt to be regarded as the ancestor of Mediterranean and hence of European civilization. The civilization which arose on the banks of the Euphrates was spread far and wide by the empires, first of Babylon, and later of Assyria and Persia, of which Babylon remained the spiritual and intellectual centre. Through Syria and

Anatolia this civilization touched and influenced the young Hellenic civilization of the Aegean. Later conquests by Greeks and Parthians and Sassanid Persians only modified and enlarged the Mesopotamian tradition, which became the substratum of the remarkable Islamic civilization which flowered in Iraq, and particularly at Baghdad, in the period of the Abbasid Caliphate from the eighth to the thirteenth century A.D. From southern Iraq once again a culture spread westwards, through north African lands conquered by Moslems and united by religious ties, to Spain, France, and Italy, where in medieval times the roots of modern civilization were being established.

The tradition of civilization in Iraq was broken by the Mongolian invasions, which swept away much of the ancient way of life, and was prevented from recovery by the dead hand of long centuries of Ottoman Turkish administration. For the historian Iraq is a land of famous ruins and monuments, an archaeologist's delight. The warnings of the ancient prophets were only too well fulfilled. What has been uncovered at Nineveh, Babylon, Ur, and other sites is probably only a tithe of what still lies beneath the soil. Of the Abbasid towns little has survived, either ruined or intact, excepting the remarkable complex of Abbasid Samarra.

For the people of Iraq, however, all this is a forgotten tale. In modern Iraq nearly everything has had to be created anew. All that survived in 1918 of the great past, even of Abbasid civilization, was a purely religious and extremely exiguous residuum of Koranic and traditional belief, ethic, and custom, sufficient for a crude basis of relations with a man's neighbour and his Deity. Only the more exceptional, even of the learned hierarchy, had an understanding of what Babylon and Islam had meant in past centuries.

The geographical situation of Iraq gives it an importance independent of cultural associations. Through it run not only the shortest but the easiest routes from southern Europe to the Persian Gulf and to India, and thence to the Far East. From the times of the Babylonian Empire to the discovery of the Cape route to India the trade of the Far East always passed through Iraq to the Levantine ports of the Mediterranean. In the nineteenth century the desire to control or to prevent others controlling this route involved Great Britain, Russia, and Germany in attempts to dominate Iraq. The discovery of oil and the growth of aerial communication in the twentieth century have given a positive place to Iraq in world politics, which can hardly be lost so long as oil flows and aircraft need to break their journey between Europe and India. International

airways are of little direct benefit to Iraq, but the development of the great oilfields of Kirkuk, from which a substantial royalty is paid to Iraq, has made it financially possible to build the costly modern material of civilization—roads, railways, irrigation works, schools, and hospitals—far in excess of what the country's other resources could permit.

A third factor which gives to Iraq international importance among Moslem countries is the existence at Karbala, Najaf, and elsewhere (p. 328) of the principal shrines of the Shia Moslems, to which pilgrims come, particularly from Persia and India, as to a second Mecca.

People

Although Iraq has been dominated for a great part of its history by Persian and Anatolian empires, the main element in its population has been recruited continuously from Arabia. The inhabitants of southern Iraq are Moslem Arabs of the two great sects, Sunni and Shia. In northern Iraq the population is more mixed and reflects more distinctly the clashes of empires that have occurred on its soil. In the plains there are Moslem Arabs, Turkomans, and Kurds, while the population of the foothills and mountains is almost entirely Kurdish. The Kurds are Indo-Europeans speaking an Aryan tongue, the Arabs are what is commonly called Semitic by speech and race. There are substantial and long-established Christian and Jewish minorities in the country, but the principal discords are not between Moslems and non-Moslems but between Shias and Sunnis, and between Kurds and Arabs. The country is dominated by Sunni Arabs, and the name of Iraq is a tribute to the strength of the nationalist fervour which has foisted upon the northern part of the country a name and a government largely alien to it.

The vast majority of the inhabitants are peasants, *fellahin*, and shepherd nomads, *shawiya*, and the livelihood of most of the rest comes directly or indirectly from agriculture and stock-breeding. The picturesque camel-breeding *beduin* are relatively few and unimportant. Production is in excess of the country's present requirements, although methods are primitive and only a very small percentage of the land is cultivated. A larger population could easily be supported by its own labour. Except for the oilfields, which do not employ large numbers, Iraq has no serious modern industry, but the pots and pans and trappings of everyday life are still made to a large extent at home or by craftsmen in small workshops.

Administrative Divisions

After the Ottoman conquest the country was divided into the three ayalats or vilayets of Basra, Baghdad, and Mosul, which approximated very closely to its natural and political divisions. Modern Iraq, however, has discarded the division by vilayets and consists of fourteen smaller units called *liwas* or provinces (fig. 73). The basis of these divisions is described on p. 394. The capital of the country is the great city of Baghdad, and there are two other smaller cities of great regional importance, Mosul, sometimes called the northern capital, and Basra, the port of Iraq. These and the chief towns are described in Chapter XII.

Irrigation and Agriculture

Throughout history, in her periods of greatness, the prosperity of Iraq has been based on agriculture, which has only been possible by the proper control and use of water. In earliest times channels were dug for irrigating lands abandoned by the rivers. The necessity for sovereignty over water probably determined the fusion of independent city-states into larger groups, dominated by a ruler more powerful than the rest. As the process grew to empire, elaborate systems of irrigation came into being, until in Sassanid and Abbasid times most of the cultivable land was under cultivation. A thousand years of neglect has left derelict the ancient irrigation systems, and it is only by great effort that the old prosperity can be restored. The modern Irrigation Department has already done much: barrages, regulators, and properly supervised main and branch canals have been built and dug, but there are problems of land registration and ownership, of saline tracts, and of drainage that still have to be solved.

Communications

Water is the controlling factor of communications in a naturally arid country. It is so in Iraq where the two great rivers, their perennial tributaries, and desert water-holes have always regulated movement. With the development of modern methods of transport and speed, water still retains its importance. Modern shallow-draught paddle-steamers or stern-wheelers navigate the Tigris to Baghdad, but cannot go up the Euphrates because of the dispersal of its waters. Here a metre-gauge railway takes its place, but is dependent on the river for its water. The deserts as a rule form good going for motor-cars, but these, like the camel, have to go from well to well. Even

aircraft tend to keep to lines where water is found, since in emergency they must come down by water. Bitumen is available for the surfacing of roads, but stone for metalling or ballasting is rare over great stretches in the south, where the delta alluvium is churned by wheels into a thick mud by winter rains. The maps of Iraq are therefore covered with tracks 'fit for motors only in dry weather'.

In 1914 there was only one short length of railway in the country, and Basra was an undeveloped river-port, where landing had to be made by launches and barges from vessels anchored in the fairway. By 1919 Basra was a modern port with miles of wharves, and railways had been built to supply the British armies. These were relaid and reorganized in the years that followed, and bridges were built to improve road communications. With the completion of the railway from Tel Kotchek to Baghdad in 1940, it might be said that the country's communications were sufficient for its peace-time needs. Nevertheless since 1941 the strain of war has necessitated a great expansion of ports and communications, some of which will certainly be superfluous when peace comes.

In Chapter XIII an account is given of the navigation on the Tigris and of the railway system. Full details of war-time expansion are not available for publication. Only a general pattern of the land routes is given. For details of roads and tracks, which are always changing in a country where metalling is rare, reference must be made to up-to-date route-books. Brief mention is made of the main air-route through the country, but everything is at present subordinated to the pressing needs of war.

Oil

The international importance of Iraq because of the recent discovery of oil has been briefly mentioned. Iraq shares with Persia and Arabia an important fraction of the world's supply of oil, which, owing to the vast expenditure of oil resources since 1939, is certain to become increasingly valuable, especially as Iraq is on one of the world's great airways. Already the oil is pumped from the rich fields of Kirkuk 650 miles across the intervening deserts to Haifa and Tripoli on the Mediterranean. The proximity of the Anglo-Iranian Oil Company's great refinery at Abadan, where oil is sent by pipes from the Persian fields, the discovery of oil at Kuwait and Bahrein, and the prospecting of other concessions in the gulf area must add greatly to the strategic and international importance of Iraq.

Spelling of Names

The authors have been greatly handicapped by the diverse spelling of geographical names. There is even greater inconsistency in Iraq than in most countries where transliteration from non-Latin alphabets is necessary. A gazetteer issued by the British forces in Iraq has been used as the basis, though this admittedly is based on the first surveys made in the country during the War of 1914–1918, when time did not permit accuracy in spelling. Unfortunately Arabic scholars since then have seemed unable to agree on a practical system of transliteration suitable for the country, which in turn shows little anxiety to be consistent. Even places such as Baghdad and Basra have their variants Bagdad and Basrah, while a single government department will revel in inconsistency regarding the use of *a* and *e*, the terminal *h*, the Arabic article *al* or *el*, and the use of *k*, *q*, or *g* for the Arabic ق. In Iraq, majority opinion seems to prefer *a* to *e* for the short vowel, though both are found. In Syria *e* is commoner than *a*. Hence the apparent inconsistency in the word *Jabal* or *Jebel* on either side of the Syrian boundary (p. 3). The sound of the Arabic ق is a deep guttural in Iraq, and so has often been transliterated *g*, which is nearer the sound than *q* for the ordinary visitor who does not read Arabic. But *q* is used throughout this book for this letter, since it is now common practice. The P.C.G.N.[1] rules, though sound, are not yet fully in use on British maps of Iraq. Where there is so much doubt it has seemed advisable to aim at consistency within the book and to leave it to experts in the leisured times of peace to put the matter right. In following this precept, the Arabic ع (*'ain*, usually shown by ') has been consistently dropped, as it is almost impossible for any but the most expert Arabic-speaking Englishman to pronounce. The terminal *h* when not sounded, as in such words as Basra(h), Amara(h), Nasiriya(h), has also been dropped, in accordance with the P.C.G.N. rules, though it is used in Iraq for many places and by many officials. For the short Arabic vowel *fat-ha*, *a* has normally been preferred to *e* (as in the word *jabal*), but 'tel' has been preferred to 'tell' or 'tall', 'Eski' to 'Aski', and Erbil to Arbil, since these seem to be more conventional. Lastly, the Arabic article *al* has been omitted wherever possible at the beginning of place-names. Few Europeans in the country speak of An Najaf or Al Falluja, and it seems pedantic to use it in an English account of the country.

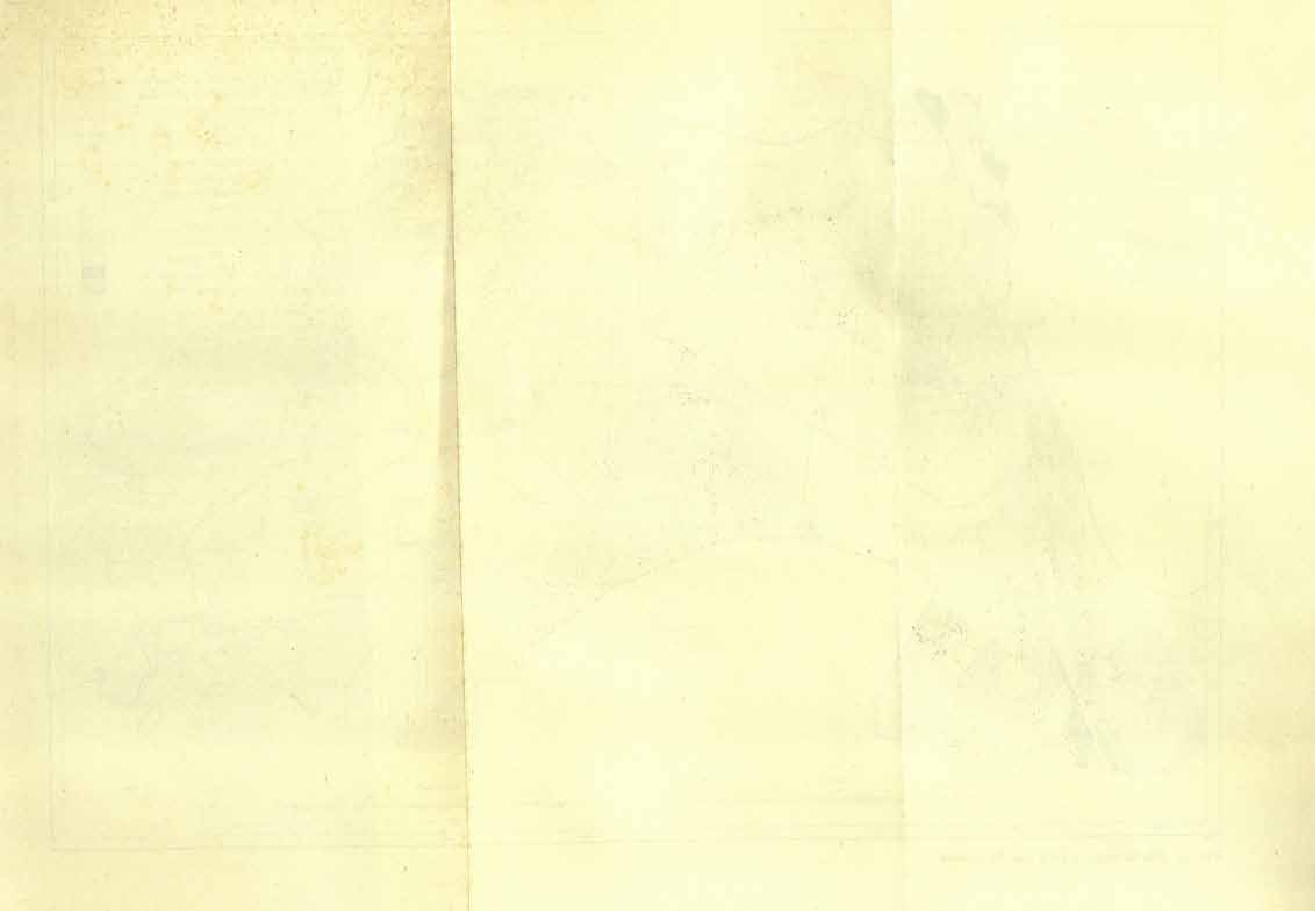
A second difficulty arises over the use of alternative place-names. Many which have been in current use since the eighteenth and

[1] The Permanent Committee on Geographical Names.

nineteenth centuries are being replaced by names which date back sometimes to the Abbasid geographers. Thus Qaraghan has been turned into Jaloula, Shahraban into Muqdadiya. The names familiar from English accounts of the country have been generally retained in this book, but alternatives are given in the Index where possible, and occasionally in brackets in the text.

Sources of Information

From 1918 to 1931 annual Reports were issued by the Mandatory administration which gave detailed information on all aspects of the country's life. Since then there has been a remarkable dearth of information from official and unofficial sources alike, and it is extremely difficult to probe beneath the surface of events in Iraq or even to discover simple facts about the country's economic organization. Such statistical and other information as is published is by no means reliable, partly because in the last resort the population of Iraq do not willingly give information about themselves to State officials, partly because the Iraqi administration has not the experience of a long-established bureaucracy for the compilation of accurate information. Hence statistical information is generally out of date and trustworthy only as a general guide to the minimum rather than the maximum capabilities of the country.



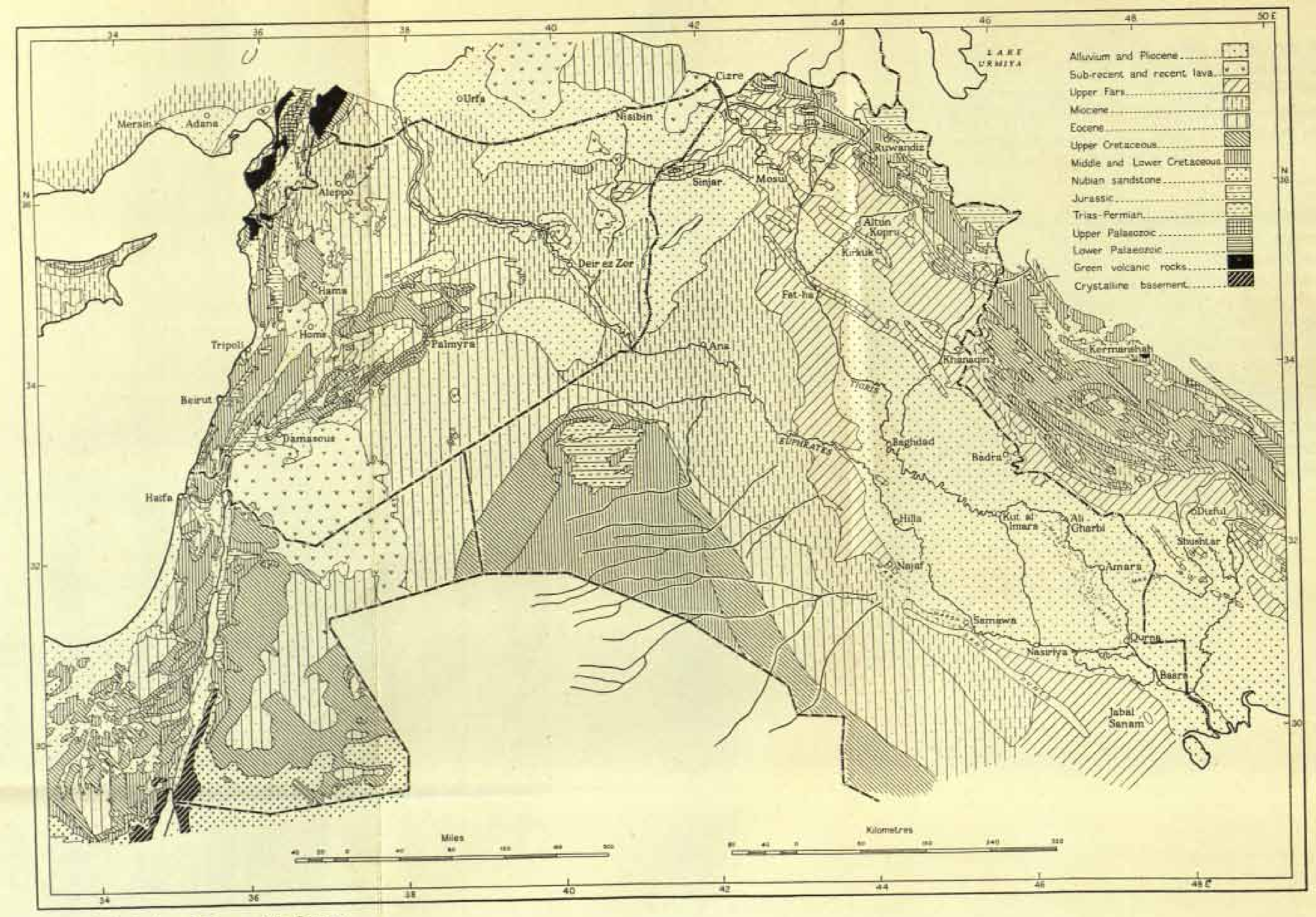


FIG. 2. *The Geology of Iraq and the Levant*

CHAPTER II

GEOLOGY AND DESCRIPTION OF THE LAND

GEOLOGY

THOUGH much was written, little was known about the geology and structure of Iraq before the War of 1914–1918. Since then a flood of light has been shed on the subject, as the result of the search for oil and for more adequate water-supplies in certain parts. Most of the State has now been well surveyed topographically, and much of the geology has been carefully mapped (fig. 2).

Structurally and geologically Iraq may be divided into three parts:

(i) The plains of the western deserts rising almost imperceptibly from the banks of the Euphrates and underlain by strata tilted slightly towards the east, but virtually free from folds.

(ii) The mountain districts in the east and north, where folded, contorted, and even broken layers of rock build up the ranges.

(iii) The silt-filled depression of Mesopotamia between these two parts, the prehistoric head of the Persian Gulf.

These three parts, though markedly affecting each other throughout the ages, have had very different histories. The first has been controlled by its underlying block of worn-down Arabian land—part of the ancient African continent ending just west of the Euphrates—which has formed a resistant foundation covered by sedimentary layers, thin on the west but thickening as the river is approached. The second was the southern part of a long-enduring ocean between the African and Eurasian continents, in which a thick accumulation of sediment was deposited and has been folded later into mountains. The third and central unit covers the junction of the first two and is young compared with them.

At certain periods in the history of the earth parts of its crust have suffered deformation by contraction. At such times the larger continental masses have sometimes behaved as rigid blocks, which, though they may break and shear, will not readily bend; sometimes they have moved bodily towards each other, the long ocean belts between them have been narrowed, and their pliable sedimentary floors have been forced to fold between the continents. This is precisely what has happened in south-western Persia and along northern and eastern Iraq, where the rock-sheets laid horizontally on the floor of the sea

have been rucked into ridges and hollows, as a result of the pressure exerted from both sides when the African-Arabian mass in the south and the Eurasian continent in the north moved towards each other. Only part of this action occurred in Iraq. Here the earth-waves are highest, most tightly packed, and most distorted in Kurdistan and along the Persian borderland; they decrease in size and complexity towards the centre of the country. But the Arabian block and its sedimentary mantle in south-western Iraq is almost undisturbed.

The three parts will now be considered in more detail.

(i) *The Western Desert Plains*

The geological history of this region is long but simple. Events have caused a succession of layers to be deposited on the rigid continental block and on its gentle eastern slope, beyond which the block ends at a hidden edge. Sometimes the block has been above sea-level and subject to desert conditions; always the sea has lapped its edge, ebbing and flowing over its surface, because of changes in the relative level of land and sea. It must be emphasized that the surface of the block is so nearly horizontal that it has provided a delicate record of even small rises and falls of sea-level, for a slight rise has meant the flooding of a considerable area of land by a shallow sea. The process is exactly analogous to that of the ebb and flow of the tides on a gently sloping foreshore, though the interval between the 'tides' is measured by millions of years.

The ancient basement of the continental mass is only revealed far to the west, outside Iraq, where great cracks have occurred and a rift of the earth's crust has appeared along the gulf of Aqaba and the Red Sea; but this basement, here seen to be made up of old crystalline rocks pierced by granitic intrusions, is believed to underlie the whole region eastwards. Over the western part there is a thick mantle of red, yellow, white, and grey sandstone—the 'Nubian sandstone'—resulting from air-borne accumulations during a long period of hot desert conditions which probably endured for a few hundred million years between the beginning of the Cambrian until the beginning of the Lower Cretaceous. This sheet of aeolian deposits reaches eastwards as far as Rutba in western Iraq and possibly beyond. Farther east it either thins out, or was never laid down, or was later bevelled off by the coastal erosion of the eastern sea. This immersion of the gently inclined continental slope east of the Nubian sandstone occurred during the Jurassic—possibly in the preceding Triassic—when a pile of marly, massive, thin-bedded limestones was laid down

and by Lower Cretaceous times formed a wedge level with the surface of the north-east shoulder of the basement block. The Nubian sandstone to the west and these limestones to the east then formed a wide submarine plain evenly covered by a shallow sea in which a fairly thin sheet of sandstone was deposited. In the Middle Cretaceous the sea ebbed, and a low flat land occupied western Iraq much as it does to-day, only to be covered again by the sea in Upper Cretaceous times. This sea ebbed and flowed during Eocene, Oligocene, and Miocene times, in each of which a thin layer of limestone was produced. These limy veneers find contemporary counterparts across Mesopotamia in the Kurdish foothills, while between the two a calcareous sludge settled in the sea. Torrid conditions in the Miocene effected the concentration of salts in the sea-water, and these have been recorded by a wide apron of red clays interbedded with anhydrites. This stage was succeeded by a period when lagoons of fresh or brackish water were formed as the sea-bed filled up with sediments, leaving a fairly thin deposit of pebbly red marls and clays along a narrow fringe. The latest phase in the history of this western region is the recurrence of desert conditions, such as are evident to-day, which have made their mark by leaving a strip of dunes along the Euphrates edge of the southern desert.

Like many of the plateaux of western and central Asia, this western platform of Iraq is pitted by a few late shallow depressions of perplexing origin. Perhaps they are the result of sagging—more probably of local faulting. They were filled with water, and their lake-deposits contain freshwater shells. They immediately recall the local depressions (*ovas*) of the Anatolian plateau and the larger basins, such as the Turfan depression, of central Asia.

(ii) *The Mountain Region of the North and East*

The history of this region is much more complicated. It is, however, important, for, as mentioned in the Introduction, this region has been found to contain mineral oil, and the search for oil is very closely connected with the nature, composition, and history of the sedimentary layers. Mineral oil is formed under certain conditions by biological and chemical processes in sedimentary strata; it collects in bulk when the strata are folded into gentle arched structures or anticlines under suitable cover. Seepages occur where the cover is thin or where there is a fracture. If the anticline has been badly broken, all or most of the oil may have been drained away and lost. It is therefore of the greatest importance for the oil geologist to know

the composition and succession of the strata beneath the surface of the earth and to be able to deduce if possible the position of underlying unbroken anticlines and domes.

The north and east of Iraq were for long periods of time covered by the sea which ebbed and flowed over the basement to the west. But here there is no rigid foundation on which the sediments have been deposited, and the sea-bottom has often sunk during the period of deposition. The beds are therefore generally much thicker than those of the western region, while the later contortions they have undergone during the process of mountain-building and the denudation to which they have been subjected have added to their complexity.

Nevertheless their history can be partly read in the walls of the gorges which have been carved through the outer ranges of Persia and in Iraq. Details of the stratigraphy are reserved for Appendix A, and only a summarized history is given below.

In Cambrian times, when the Arabian basement was exposed, the waters of the shallow sea that lapped its edges were so concentrated in this north-eastern region that they deposited salt and gypsum. This concentrate was covered by a thick layer of sand and mud. Occasional masses of marine shells in Upper Cambrian times have built up reefs of limestone among the beds of silt. Then for a period the sea retreated and the region appears to have been covered by swamps bordered by forest—possibly in Devonian times near Zakho in the north, and certainly during the Middle Cretaceous period farther to the south-east.

In the early Carboniferous period the sea invaded this land from the south and east, and by Upper Carboniferous times moderately deep water covered the whole area. Gritty red sandstones mark the coming of this sea, and thick deposits of fossiliferous dark-coloured limestone show the establishment of deeper and clearer water. The sea persisted throughout the whole of the Mesozoic era, though its depth and extent, and the nature of its bordering lands, varied considerably. After a long spell of deep water the ocean contracted at the end of the Permian period to a shallow gulf. The purple, blue, and yellow muds and sands now exposed in the lowest horizon of the bed of the Sirwan (Diyala), on the borders of Iraq and Persia, are tokens of this withdrawal. The sea soon expanded again, and became extensive and moderately deep in the Triassic period, though freely supplied with mud. In the Jurassic it was stagnant and the scanty debris falling to the sea-floor gradually decomposed, without an adequate

supply of oxygen for the normal processes of decay. The layers of rock which resulted have a dark colour, a foetid smell, and an oily content. Whilst these conditions obtained over some of Iraq, volcanoes to the north-east in Kurdistan were active, erupting lava, steam, and siliceous acids into the sea. Such unusual conditions favoured the growth of myriads of small organisms, the radiolaria, which build their skeletons of silica. These contributed largely to the formation of red chert, a substance like flint in texture, hardness, and composition, but not in colour, which accumulated in many thin beds, aggregating a thickness of about 5,000 feet. Although these deposits were actually laid down in the sea beyond what is now the frontier, later events have brought them into Iraq, and the debris wrested from them has provided an important constituent of the later rocks.

When the Cretaceous period commenced, the sea became less stagnant, and with better circulation a thick covering of light-coloured limestone was deposited. After one short relapse to stagnancy, the process was repeated and the limestone continued to pile up. Although their aggregate thickness remains the same throughout, a surprising abrupt variation occurs on a line from north-west to south-east. On the one hand the stack of limestones is composed of thick robust beds; on the other, the sheets are less than a foot thick and are separated from each other by a thin layer of mud. This may have been caused by the latter having been influenced by river-borne sediments.

The Upper Cretaceous period began quietly. As a precursor to more violent change muddy water sullied the sea and mixed with the limy matter to form beds of marl. This indicates that the beds near the Persian border north-west of the Diyala, and within Persia south-east of this river, were beginning to fold into mountains. A rampart of hills was now erected from Turkey through the north-eastern fringe of Iraq far to the south-east, down to the south-western provinces of Persia. The sea lapped against the mountain flanks and deepened rapidly as the beds beneath were folded downwards. The gravel, sand, and silt, the surface layers of the rising heights, were vigorously eroded and their debris accumulated in the sea with coarse boulders. The contraction of the earth's crust which caused these events was responsible also for the movement of the layer of hard red Jurassic cherts, a part of which was carried bodily southwards where it now rests upon the Cretaceous limestones and helps to build the mountains in the extreme north-east of Iraqi Kurdistan. Much of the debris collected in the moat formed south-west of the ranges is com-

posed of fragments of this chert, and gravel and sand formed from it has remained accessible throughout Tertiary times until the present day. The near-shore grit of the Eocene period was also formed from this chert, though out to sea its place was taken by long strips of nummulitic limestone, from 10 to 40 miles broad. Still farther from the land an ample supply of mud settled down into thick wide beds. During the Oligocene the sea withdrew slightly towards the centre of the basin. A further pulse of movement then gently elevated the north-western end of the region and depressed the south-eastern; the Miocene sea was therefore deeper towards the south, and the tremendous sheet of Lower Miocene limestone found there thinned out northwards and is absent from certain localities such as Kirkuk.

A fresh contraction of the crust narrowed the moat that girdled Iraq, depressing the north-western end without appreciably deepening the rest. The climate also became drier and warmer. Rivers and streams on the mountain flanks brought fine sediments to the sea, where it settled in layers alternating with beds of precipitated anhydrite or gypsum and salt, the result of chemical concentration in the sea-water caused by wind and a hot sun. The reaction here is exactly parallel with the occurrence of similar beds in the western region already described. The initial oscillation between normal and concentrated sea conditions, as the change from temperate to torrid climate took place, is recorded by the interfingering of limestones with shale and gypsum in the lower beds. After the gradual filling up of this long shallow sea, the ocean withdrew to the south-east, leaving brackish and even fresh water in the north. Gradually the sea in the south-east also filled up and lagoonal conditions took its place.

The swamps were maintained for a considerable time, although the whole area was gradually sinking. The foundering was made good by sand and mud brought freely into the depression by a system of rivers rising far away to the east on a plain with a westward tilt. Then came the last important phase of the crustal shortening when this plain was gradually elevated and corrugated, but not so fast as to deflect the rivers from their previous beds. The folds, although they rose right across the direction of the rivers, were cut through faster than they rose, and the troughs flanking the ridges were gradually cleared of sediments by lateral tributaries. As the folding became more pronounced and the draining progressed, the ranges became higher, and on the sides of the deepening gorges was exposed the long history of their rocks. At a late stage large out-wash fans were built where some of the gorges debouch, and the depressions between

the ranges and parallel to them were scoured into broad sweeping valleys, covered with a veneer of gravels. Later still, probably as the result of a small general uplift, the rivers have been rejuvenated and have cut small gorges in their own fans, while their lateral tributaries have notched their earlier floors, which remain as conspicuous terraces on both sides of the streams. This uplift is the latest chapter of the geological story, but an occasional earthquake shock serves as a reminder that it is still being written.

(iii) *The Silt-filled Depression of Mesopotamia*

The geological history of the Mesopotamian plain is brief and simple. After the eastern mountains and the western plateau had all but evolved to their present condition, the space between them was mostly submerged, the prehistoric head of the Persian Gulf extending far to the north-west of its present muddy shoreline. Its head then lay north-west of Tikrit, and the Euphrates and the Tigris entered it separately. No permanent streams reached it from the western plateau, though occasional floods were brought into it after infrequent storms; but below the Tigris mouth along the northern coast of the gulf there debouched a number of small rivers and two large ones, the Karkheh and the Karun. All these rivers carried enormous amounts of sediment during their flood periods each year, which they deposited in the gulf. Before long the deltas of the Tigris and the Euphrates merged into one another; but much of the vigour normally exerted by sea currents in removing and distributing their invading silt was prevented by the action of the Karun, whose own great lateral delta grew quickly from the north-east side of the gulf, enclosing a long sheet of still water north-west of it. In this basin the deltas of the several streams soon merged into one another and formed the Mesopotamian plain. The union between them is often imperfect and some as yet only meet in certain places, lake and marshland occupying the intervening spaces, though these are slowly filling up. Thus the Amara marshes trap the silt brought down by the Tigris in flood time, the thick muddy water which enters them up-stream being returned into the river, which is quite clear between Ezra's tomb and Qurna. The swamps and lakes up-river of Samawa and down-river of Nasiriya do much the same for the Euphrates, so that the work of extending the land at the head of the present Persian Gulf is left to the Karun alone, except when the floods are at their height. Then even the tremendous settling tanks formed by the marshes in the Mesopotamian plain cannot purify the swollen rivers from the north,

The levels of the Tigris from Baghdad southwards, and of the Euphrates below Ramadi, are higher than the land beyond their banks in time of high flood, and both rivers have to be enclosed by strong earthen embankments. When these are breached the rivers submerge wide areas on either side, and are liable to change their courses. Both rivers have indeed in prehistoric and in historical times changed their lower courses several times; and in historical times the separate mouths of the Tigris and Euphrates have been lost, their waters now reaching the Persian Gulf through a single youthful channel, the Shatt al Arab. (For a note on the recession of the head of the Persian Gulf in historical times, *see* p. 54 and fig. 14.)

DESCRIPTION OF THE LAND

As mentioned above (p. 13), the kingdom of Iraq falls into three broad structural divisions: the Arabian desert edge, the folded mountain belt, and the Mesopotamian plain. Geologically they came into being in that order; historically their importance is exactly the reverse, for it is the Mesopotamian plain that has nursed the great civilizations of the past and its two great rivers that have nourished them. Next in importance is the mountain borderland, peopled by a different race, hardy and warlike, and living an entirely different life from that of the Arabs settled on the rivers of the plain, or wandering with their flocks and herds in the desert.

This description therefore begins with a general survey of the Mesopotamian plain, an account of the regime of the Euphrates and the Tigris, and a detailed survey of the courses of the two rivers. Next is described the broad pattern of the mountains and of the mountain rivers. This is followed by a regional description of the three divisions—the plains, the mountain belt, and the desert. The plains are divided into Lower and Upper Mesopotamia, the latter including the Jazira between the two rivers above their deltas—only a small part of which is in Iraq—and the gently folded, partly buried, undulating lands of ancient Assyria east and west of the Tigris, together with the plains south of Kirkuk and north of the Jabal Hamrin, which though structurally part of the mountain belt are transitional between the plains and the mountains, and the meeting-ground of Arab and Kurd.

The Kurdish mountains are most conveniently subdivided into their chief river basins. Lastly there is a short description of the western and southern deserts. This layout is summarized as follows:

General Description

(*a*) The Mesopotamian Plain
(*b*) The regimes of the Euphrates and Tigris
(*c*) The Euphrates in Iraq
(*d*) The Tigris in Iraq
(*e*) The pattern of the mountains
(*f*) The pattern of the mountain rivers

Regional Description

Lower Mesopotamia
(*a*) The lower delta lands
(*b*) The upper delta lands

Upper Mesopotamia
(*a*) The Jazira of Iraq
(*b*) The Assyrian plains and foothills

Iraqi Kurdistan
(*a*) The basins of the Diyala and Adhaim
(*b*) The basin of the Little Zab
(*c*) The basin of the Great Zab
(*d*) The basin of the Khabur

The Western and Southern Deserts

General Description

(*a*) *The Mesopotamian Plain*

The action of the Karkheh and the Karun, which are remarkable for the amount of sediment which they carry, in forming a barrier across the Persian Gulf has already been mentioned (p. 19). The two rivers, and the greater part of their combined delta, are in Persia, so that details do not directly concern Iraq. The Karun now collects most of the mountain streams draining the hills north-east of Ahwaz, including the Ab-i-Diz, 'the river of Dizful'. In historical times it was joined by the Karkheh; but, though their delta is a joint one, the latter river now pours most of its silt-laden waters into the low ground on both sides of the Iraq–Persian boundary east of Amara, where it aids the flood waters of the Tigris in building up the land between the Tigris and the lower Karun. The main channel of the Karun now joins the Shatt al Arab—the combined outlet of the Tigris and of the Euphrates—at Mohammerah (Khorramshahr) just outside Iraq, and 23 miles down-river of Basra; but this is a comparatively recent event, for in the tenth century A.D. Abadan was the seaport of Basra, actually on the Persian Gulf, and the joint

estuary of the Karkheh and Karun entered the gulf at Sulaymanan. The site of the latter is now lost, but Abadan is well known as the oil-port of the Anglo-Iranian Oil Company below Mohammerah and is now more than 25 miles from the head of the gulf. The Karun sediments, unable to bar the outlet of the Tigris and Euphrates, are carried seawards, and the combined delta is being reclaimed at the rate of 2 miles a century. Much of this built-up land is under marsh or lagoon, fed indifferently by the overflow of the tides or of the inland waters; but the Khor Abdulla and the Khor as Sabiya, fed by the Khor Zubair, used to drain the extensive marshlands west and north-west of Basra, and even the Hammar lake, when all these became a single sheet of water in high-flood season (p. 61).

Behind this growing barrier the two great rivers of Iraq, the Euphrates and the Tigris, with considerable help from the tributaries of the latter, have poured their waters since Tertiary times and with their sediments have built up the Mesopotamian plain. It is calculated that rather less than 10 per cent. of the sediment brought down by these rivers in flood time passes on into the Shatt al Arab.

The Euphrates rises far away in north-east Turkey near Erzurum and, after collecting the greater part of the drainage of eastern Turkey, breaks through the Kurdish Taurus north-west of Diyarbekir. Deflected westwards by the Karacali volcano, it flows through Syria, turns south and then south-east about 120 miles from the Syrian shore of the Mediterranean, and enters Iraq immediately below Abu Kemal, where it is cutting its bed in the Tertiary rocks near the edge of the Arabian escarpment. It enters its delta below Hit, about 200 feet above sea-level, and about 350 miles in a direct line up-river from Basra. Except for the water of occasional rainstorms and an insignificant trickle of water brought down by rare spring-fed wadis, it receives no tributaries on either side in Iraq, though the flood waters of the Tigris reach it at Nasiriya and below (p. 39). On the contrary, from Hit downwards great quantities of water are drawn off for irrigation purposes, and vast expanses of water extend on either bank in the flood season. It is here that the greater part of the silt is deposited. Moreover, the river and its distributaries have many times changed their courses, as is shown by *tels* of ancient cities that once stood on their banks. Two of its ancient channels, now the Hilla and the Hindiya branches, are to-day regulated by the Hindiya barrage, but both break up into a number of subsidiary streams and canals before uniting again near Samawa, and much water is dissipated before the river reaches the extensive Hammar lake, from which,

even in the low-water season, there is a channel into the Shatt al Arab at Qarmat Ali, immediately above the airport of Basra.

The other great river, the Tigris, has a shorter, swifter course and a greater fall as it passes through Iraq. Rising near the Gölcük lake north-west of Diyarbekir, it collects all the drainage south of the Kurdish Taurus and eastwards to the Persian frontier. It enters Iraq just above Pesh Khabur, 136 miles north of Mosul, still at 1,000 feet above sea-level. Between Mosul and Fat-ha it is joined by its two greatest tributaries, the Great and the Little Zab, which have drained the Kurdish mountains, and contribute a great volume of silt-laden water during the season of the melting snows (March–May). In flood time the Tigris below the confluence of the Great Zab has almost double the volume which it has above (p. 42). Below this confluence it meets the Qaiyara, Hibbara, and then the Mak-hul hills and is deflected by them south-eastwards. Before finding a passage through, it is reinforced by the Little Zab. Below the Fat-ha gorge two other perennial tributaries reach the Tigris—the Shatt al Adhaim, between Samarra and Baghdad, which collects the drainage of a wide area behind the Jabal Hamrin from Kirkuk to Tuz Khurmatli (p. 86) and is particularly susceptible to sudden rises from heavy rain in winter, and the Diyala, which, as the Ab-i-Sirwan, drains a large snow-fed basin in the Kermanshah district of Persia. The Diyala is strongly affected both by winter rainfall and by the melting snows of spring and early summer, but in the low-water season its waters are all used for irrigation.

Near Baghdad the Tigris with the aid of its tributaries has so built its course above the level of the land on either side that some of the waters of the Diyala which leave the river above and below Shahraban, and all those of the lesser perennial streams that break through the foothills near Mandali, Badra, and Ziarat Kaka Ali, are dissipated in the low marshlands between the hills and the Tigris; only some of this marshland water seeps into the Tigris through the subsoil at low water. From Baghdad downwards the Tigris has more and more to be harnessed to its course by earthern *bunds*. A break in the *bund* near the site of ancient Ctesiphon was responsible for the flooding of great tracts of land between the Tigris and the Euphrates; the canals down-river of Aziziya keep the great Haur Dalmaj almost perennially supplied with water; the Abbasid course of the Tigris, now known as the Shatt al Gharraf or Shatt al Hai, annually floods great tracts of land on either side of its course, and its waters in flood time merge with those of the Euphrates near Nasiriya.

The Shatt Dujaila, probably a still more ancient course (pp. 49–50), which now leaves the Tigris downstream of Kut, has, however, so built up its bed above the surrounding country that the Gharraf marshlands on the west and those of the Haur Sanniya on the east are both areas of lower ground. The present Tigris course below Kut is already built higher than these low-lying marshlands in the south and the dissipated waters of the mountain streams. Navigation on the Tigris here is less difficult, and in flood time when the waters are nearly level with the top of the *bunds* the river-vessels are actually sailing many feet above the level of the surrounding country.

A difficulty which faces the administration of the country is the conflict of interest between the settled Arab near the banks of the Mesopotamian rivers and the nomad who pastures his flocks beyond reach of the river. The training of the river within its banks and its control for irrigation is important to the former. But flooding beyond the settled land is equally desired by the nomad, for when the floods subside, rich grass springs up on which he can graze his flocks.

(*b*) *The Regimes of the Euphrates and Tigris*

The climatic conditions governing the two rivers are alike, but their effects in Iraq are rather different, because the mountain basin of the Euphrates is far more distant than that of the Tigris. The fluctuations of level of the Tigris are therefore much more marked than those of the Euphrates, the rises caused by early winter rainfall being more closely related to individual depressions and storms, and those brought by melting of the snow being more directly related to the temperatures in the hills. But the rainfall affects both rivers to a different degree throughout the winter, until the rising temperature melts the snow in March, April, and May, and brings high flood. From June onwards both rivers subside until they reach their lowest levels in September or October.

The Euphrates (fig. 3) is at its lowest in September or October. Flow is almost steady until November, when the level normally begins to rise, and the fluctuation of level and rate of rise tend to increase. By December winter conditions have set in, and the rise becomes more marked. There are occasional fluctuations from rainfall, but they bring no danger. The lower snows melt in March, but the river is not in full flood until April or May, when it begins to decline steadily, drawing its supplies at first from the snow reservoirs of the high mountains of Armenia and from springs lower down its course. In the heat of summer the evaporation in the long course

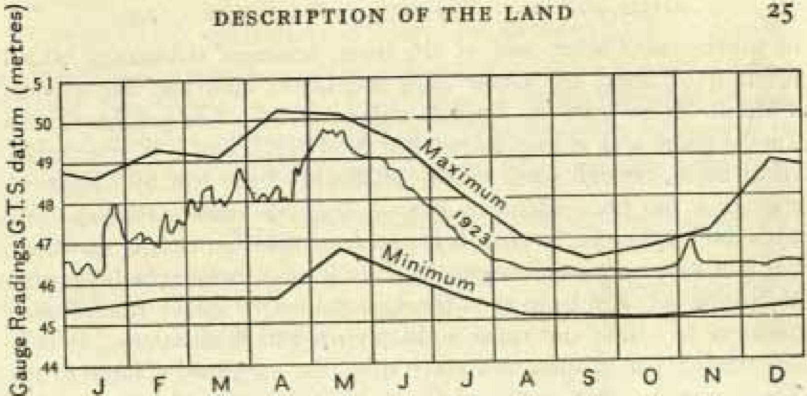


Fig. 3. *Euphrates River Gauge readings at Ramadi. Graphs of maximum and minimum in each month between 1911 and 1932 compared with a typical year (1923). [After Ionides.]*

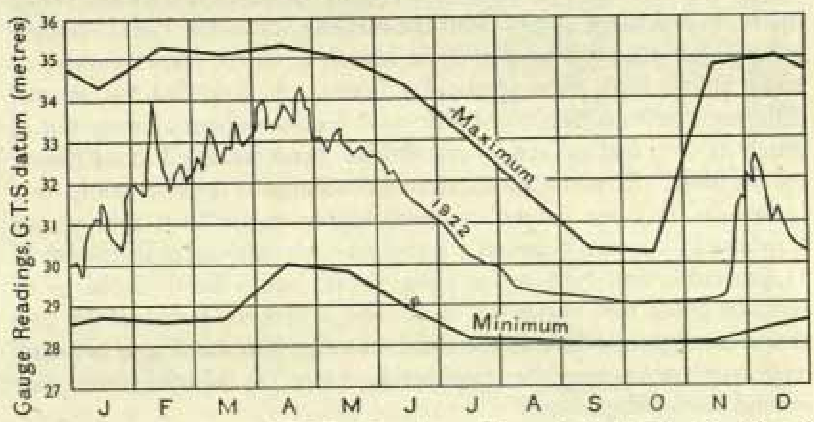


Fig. 4. *Tigris River 'A.H.Q. Gauge' readings at Baghdad. Graphs of maximum and minimum in each month between 1906 and 1932 compared with a typical year (1922). [After Ionides.]*

from the foothills to the delta is intense, and in early autumn the river may show a small rise in Iraq as evaporation declines. At Hit, where the mean annual discharge of the river is 25,000 cubic feet (710 cu. m.) per second, the normal difference between high and low levels is about 10·8 feet (3·3 m.), and the normal discharge varies between 8,800 cubic feet (250 cu. m.) per second in September and 64,300 cubic feet (1,820 cu. m.) per second in April or May.

The Tigris is a swifter river than the Euphrates, even in the low-water season, and its regime is more complex (fig. 4). The fluctuations are largely the result of the behaviour of the mountain affluents

in south-east Turkey and of the three principal tributaries which reach it in Iraq: the Great Zab, the Little Zab, and the Diyala. Thus at Mosul only the Turkish tributaries affect its volume; at the Fat-ha gorge and at Baghdad all but the Diyala: and at Kut al Imara all of them, though some water has already been lost by irrigation, and some has been added by subsoil drainage from marshland. As with the Euphrates the river is lowest from mid-September onwards, but late autumn rainfall begins to affect it often before the beginning of November, and from then through the winter heavy rainfall may occur at any time and cause sudden rises and fluctuations. If only one tributary is in spate at a given time, the increased volume of the Tigris may be more noticeable in the increased velocity than in the rise; but when all the tributaries bring down storm-water, there may be almost as much danger to the embankments then as later. These winter flood-levels are, however, usually of short duration. When the main discharge comes from the melting snow, the rise is steadier but reaches a greater maximum in March or April, often a month or more before high flood of the Euphrates. At Baghdad the normal difference between high- and low-river levels is about 18 feet, but as much as 9·19 feet caused by rainfall has been recorded in 24 hours. At the same place the mean annual discharge is 43,800 cubic feet (1,240 cu. m.) per second, a much higher figure than that of the Euphrates; it varies between a mean monthly low-water discharge of 11,900 cubic feet (337 cu. m.) per second and a flood discharge of 106,650 cubic feet (3,020 cu. m.). The difference between the two rivers is very noticeable in the flood season, when the Tigris between narrower banks may be discharging twice as much water per second as the Euphrates.

(*c*) *The Euphrates in Iraq*

The Euphrates enters Iraq (fig. 5) below Abu Kemal (34° 25′ N., 40° 57′ E.). Above this point the steep-sided valley which it has carved in the nearby horizontal beds of the stony platform of the Jazira is nearly 20 miles wide, but the river has cut its meandering course in the valley bottom, so that its banks are steep and there is little space available for cultivation. Currents here are swift and the water deep, especially in the flood season, and navigation is difficult.

Abu Kemal to Ana (direct distance 59 miles; by river 100 miles)

Throughout this section the Euphrates is less than 600 feet above sea-level; its average depth is about 12 feet in the low-water season,

its width from 150 to nearly 500 yards, and its current about 2 miles an hour. But navigation is dangerous even for native boats (*shakhturs*) because of rocky outcrops in the bed. The river can be forded at two or three places in the low-water season, but guides are necessary.

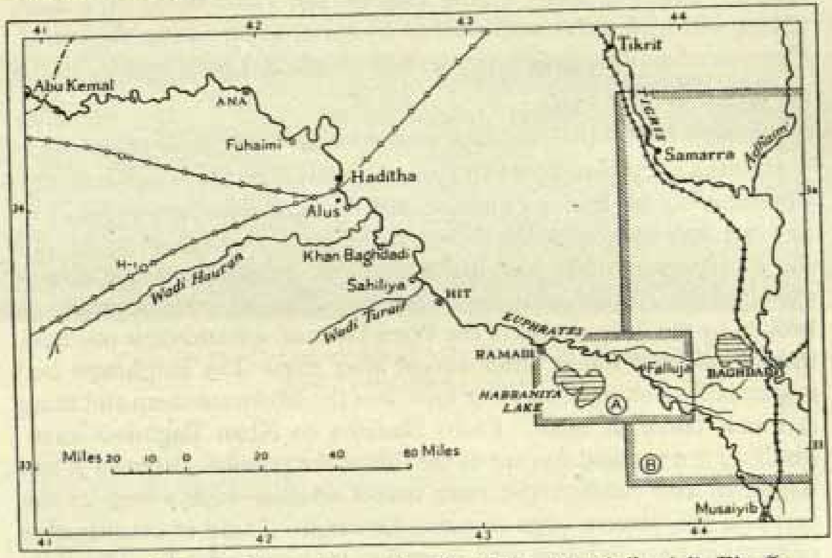


FIG. 5. *The Euphrates from Abu Kemal to Musaiyib.* (*A*) *Fig. 6;* (*B*) *Fig. 13.*

There is very little cultivation on either bank. The escarpments are about 10 miles apart, the river keeping generally close to the desert escarpment on its right bank, which rises to nearly 800 feet above sea-level.

The ancient town of Ana is on the right bank, about 130 miles by river above Hit, at the point where the Euphrates changes direction south-eastwards. It lies among palm-trees and marks the northern limit of the ripening of the date. There are several small islands, one of which, Ardeshir or Lubbad, is cultivated and has palms. The boatmen of Ana are noted for their intimate knowledge of the Euphrates.

Ana to Haditha (direct distance 35 miles; by river 60 miles)

In this section the course is south-east, but the river makes a wide detour in the second half, below Fuhaimi. There are dangerous currents in some reaches caused by rocky shelves in the river bed, but as Haditha is approached the current slackens. The escarpments

close in on either side and are often less than 5 miles apart. Much of the low ground near the river is cultivated, especially near Haditha where water-wheels (*noria*) are used for irrigation. Here the banks are lined with defensible farm settlements with small watch-towers. Haditha island is about 1 mile long by 200 yards broad; the main village with defensible wall washed by the river stands on the island. There are fine date-groves on the right bank and good grazing in the spring.

Haditha to Hit (direct distance 42 miles; by river 70 miles)

Haditha has grown in recent years as a station on the Iraq Petroleum Company's pipe-line to Palestine and Syria, which crosses the river about 3 miles south of the island. The area between the river and the escarpment bluffs is cultivated. Beyond the island and village of Alus the river bends eastwards and the desert escarpment is broken by the deep course of the Wadi Hauran, a formidable obstacle, though without much water except after rain. The Euphrates bed is generally of shingle, sand, or mud, but the banks are steep and there is much tamarisk bush. From Haditha to Khan Baghdadi cave-dwelling is a marked feature of the life of the people. Between Khan Baghdadi and Sahiliya the river makes another wide sweep to the east and the plateau edge is more dissected. There is considerable cultivation near Sahiliya with irrigation by water-wheels. The river banks throughout this section are often 200 feet high, the broken surface of the bare plain above sloping gradually upwards to 1,000 feet 35 miles west of Hit.

Hit to Falluja (direct distance 58 miles; by river 82 miles)

Below Hit, which is on the right bank of the Euphrates, the river enters its delta at about 173 feet above sea-level in September. There is a rocky sill across the bed, which impedes navigation, but thereafter the river flows unobstructed except by its own sandbanks. Hit is noted for its bitumen seepages, which are reputed to have been worked for 5,000 years. Throughout history the town has been important as a route centre, and boat-building has long been an industry. There are also naphtha and sulphur springs.

Ten miles below the town the river takes a more easterly direction as though to join the Tigris near Baghdad, and passes through flat scrub-covered plain about 10 miles wide to Ramadi, a small town standing among palm-groves. This was its prehistoric river-mouth, where the escarpment on both sides, the ancient coastline, falls away from the river. For the first time the Euphrates, here at about 150



2. *View up the Euphrates from 'New Haditha', a station of the Iraq Petroleum Company*



3. *The Euphrates below Haditha*



4. *Lake Habbaniya*

feet above sea-level in September, begins to dissipate its waters. A cut on the right bank leads to the Habbaniya depression, which contains a sheet of slightly saline water at about 140 feet above sea-level, separated from the river by the Asibi and Zaban ridges 130 feet higher

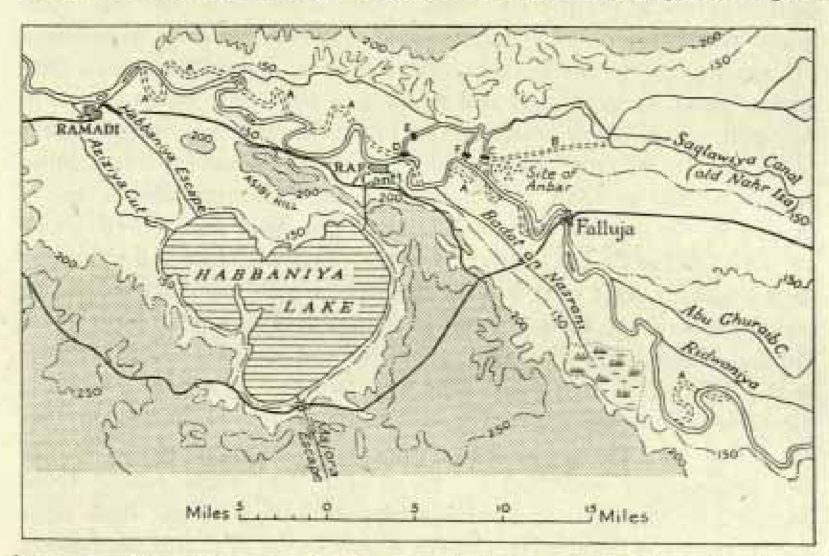


FIG. 6. *The Habbaniya Escape and the heads of the Saqlawiya Canal (old Nahr Isa). A. Course of the Euphrates in 1838; B. Anbar Channel of the Nahr Isa; C. Midhat Pasha's Dam; D. Sirri Pasha's Dam; E. British Bund; F. Modern Regulator. Contours at 50 feet approximately; ground over 200 feet stippled. The new motor road is shown by a heavy line.*

(fig. 6). It seems to have been used to take the high flood of the Euphrates in ancient times, and at the outbreak of the War of 1914–18 a new cut was being made to improve its capacity; but the project for converting the lake into a reservoir, with a regulated return channel—the 'Dhiban (Zaban) Cut'—for feeding the Euphrates at low water, was not carried out (p. 438). The Habbaniya lake still acts as a safety valve, but the embankment to the escape channel is only cut at periods when upstream gauges indicate the arrival of dangerous flood. The Majora escape takes surplus waters from the Habbaniya lake southwards into the Jira depression (Bahr al Milh) and so prevents excessive flooding in the north.

In the low ground by the river north-east of the lake is the R.A.F. Cantonment of Habbaniya, with its bungalows, hospital, wireless station, and airfield, where the small British garrison was attacked

and invested by the Iraqi forces in April 1941 under the usurper Rashid Ali, until relieved in May by a mechanized column from Palestine by way of Rutba (p. 305).

Between Ramadi and Falluja the first of the modern controlled distributaries leaves the left bank of the Euphrates (fig. 6). This is the Saqlawiya canal, a watercourse of great antiquity, possibly a prehistoric course of the river, certainly a navigable channel in Sassanian times, re-excavated and realined as the Nahr Isa in the early Abbasid period when it entered the Tigris through the suburb south of the old 'round city' of Baghdad. The whole channel was navigable at least as late as 1838, but because of the wide inundations that it caused in the region west of Baghdad, the head was closed about 1870 by Midhat Pasha (p. 265). Midhat's dam was close to Saqlawiya, then a small village on a loop of the river which has since dried up, and there is no record that it was ever breached; but after some years the Euphrates burst its banks higher up and scoured a new channel to the old bed of the canal. This was dammed by a later governor, Sirri Pasha, but less effectively, and his dam, the *Saddat as Sirriya*, has failed on several occasions, notably in 1910 and 1923. It was also deliberately breached by the Turks after their retreat from Baghdad in March 1917 in an attempt to delay pursuit. Both then and in 1923 the flood waters swept across to the Aqarquf depression (fig. 13) and threatened Baghdad. After this last occasion a new dam was built farther down the channel and has since withstood all flood pressures. Meanwhile a new cut has been made between the two former channels, and the canal is controlled to irrigate at least 50,000 acres of very fertile land (p. 437).

The mound of the early Arab city of Anbar (p. 242) is close to the old head of the Nahr Isa, a few miles distant from Falluja. Rapiqu, an early Babylonian city on the Euphrates, was approximately in the same position. Though the Euphrates approaches closer to the Tigris a few miles lower down, the best road westwards from Baghdad has always passed over the hard strip of country through Khan Nuqta south of the Saqlawiya canal; Falluja, Anbar, or Rapiqu must always have been important as crossing-places for the road to Syria.

The Euphrates below Ramadi

The delta regime of the Euphrates is extremely complicated. As already mentioned (p. 19), the flood waters have for many thousands of years poured into Lower Mesopotamia to be checked by the bar formed by the advancing delta of the Karun. From earliest historical

times cities and towns have been built on its many channels, and in times of a strong central government the waters have been mastered. The principle behind this mastery appears generally to have been the same, namely to distribute the water at various points along the course into canals—often earlier channels of the river which had silted up—and to control these canals for navigation or irrigation, or both, for the use of cities abandoned by the river. A short history of the canal system, so far as is known, is given in Chapter X. Here it is only necessary to state that in the last great period of Mesopotamian prosperity the problem was solved by the Abbasid caliphs by maintaining and regulating five great canals from the Euphrates to the Tigris: (i) the Nahr Isa, probably part of a prehistoric course of the river, which has been mentioned above; (ii) the Nahr Sarsar, roughly parallel to it and about 10 miles farther south; (iii) the Nahr Malik, successor to a far older 'royal' canal which entered the Tigris opposite Ctesiphon; (iv) the Nahr Kutha, which left the Euphrates about 12 miles above the modern village of Musaiyib and entered the Tigris a few miles below Ctesiphon; and (v) the Shatt an Nil, which also dates back to very ancient times and took off water from near Babylon and drained into the Tigris above and below the modern Kut al Imara, at a time when that river flowed down the Shatt al Gharraf (p. 50). The surplus waters of the Euphrates and of the Tigris emptied into the 'Great Swamp' (*Al Bataih*), which extended from near Kufa on the Euphrates to near Wasit on the Shatt al Gharraf, and was drained by a single channel into the Shatt al Arab at Qurna. Much of this Euphrates canal system survived the devastations of the Mongols in the thirteenth century, but decayed gradually during the last 300 years of the Ottoman Empire. The last of the great canals to become unnavigable was the Nahr Isa (Saqlawiya).

Falluja to the Hindiya Barrage (direct distance 53 miles; by river 80 miles)

From Falluja to Musaiyib the Euphrates flows south-east on a general course parallel to the Tigris (fig. 7). The river in September is about 130 feet above sea-level at Falluja and 104 feet at Musaiyib. Its breadth in the low-water season varies from 150 to 300 yards, the current is then only 2 miles an hour and the depth between 3½ and 7 feet; but the flood waters may rise as much as 18 feet, so that the natural banks, rarely more than 15 feet high, have to be raised by continuous embankments over long stretches. Four controlled perennial canals, remodelled since the British occupation of Baghdad in

1917, now take the place of uncontrolled inundation canals, which in part were the descendants of the upper courses of the Sarsar, Malik, and Kutha canals. The first, the Abu Ghuraib, which roughly follows an upper course of the Sarsar, was still under reconstruction in 1937;

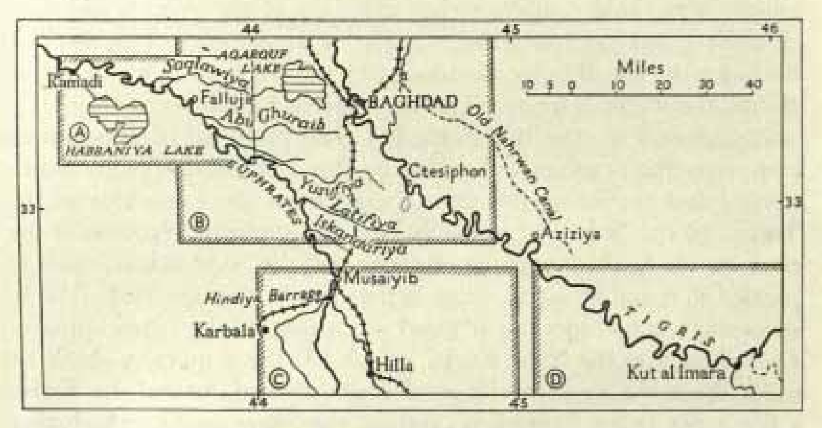


FIG. 7. *The Euphrates from Ramadi to the Hindiya Barrage and the Tigris from Baghdad to Kut al Imara.* (*A*) *Fig. 6;* (*B*) *Fig. 13;* (*C*) *Fig. 8;* (*D*) *Fig. 9.*

the Yusufiya commands much the same area as the old Malik; and the Latifiya, which was remodelled in 1931, and the Iskandariya, which was provided with a new regulator in 1930, irrigate between them much of the area between the Euphrates and the upper and middle courses of the ancient Kutha. The Yusufiya canal is the only one which can be compared in range with its ancient counterpart; its head reach may very possibly have been the Euphrates channel during Babylonian times, when the river passed through Sippar (fig. 13).

Land is cultivated on both sides of the river down-stream of the Abu Ghuraib canal head, water-wheels, pumps, and levers (*shaduf*) being used to lift water into the smaller irrigation canals, and there are many gardens, walled and unwalled, of dates, oranges, pomegranates, and figs. As Musaiyib is approached, cultivation becomes intensive, and the immediate district is said to contain no fewer than 40,000 date-palms.

As far as Musaiyib little water is distributed on the right bank; there are no large canals, and cultivation is limited to a strip rarely 2 miles wide. But 3 miles below Musaiyib the Husainiya canal takes off from the right bank and leads to Karbala, 17 miles south-west; it commands a wide area of intensively cultivated land, but the water is

5. Shallow inundation near Musaiyib

6. Typical Euphrates inundation marsh. Nest of Little Grebe in the foreground



7. *Ur, Tel al Muqaiyir, before excavation*



8. *Kish, Tel al Uhaimir*



9. *The Hilla branch of the Euphrates at Diwaniya*

not yet used to the best advantage and some runs to waste in undrained marsh. This canal belongs now to the irrigation system controlled by the Hindiya barrage (fig. 8).

The Hindiya Barrage

Nothing illustrates the vagrant habits of the lower Euphrates better than a study of the sites of ancient towns at the time of their foundation. Unfortunately few have been identified, and the long periods during which some of the land has been under irrigation, marsh, or water make identification extremely difficult. Some are, however, known for certain: Sippar (now the mound of Abu Hubba), Kutha (now Tel Ibrahim), and Kish (Tel al Uhaimir), all probably built on earlier channels of the Euphrates, seem to prove that the river in the second millennium B.C. took a more easterly course above Babylon than it does to-day (fig. 13). Geographically this is possible, and not unlikely. Moreover, the ruins of Babylon, now on an eastern channel of the Euphrates (the Hilla canal), and those of Borsippa, near the western (the Hindiya branch), may indicate that at a very early period the Euphrates flowed from Babylon direct to Borsippa and that there was then no division of the river above Babylon. Even in Nebuchadnezzar's day, when there may have been two channels, with his father's brick bridge 135 yards long over the Arakhtu channel at Babylon, it is not known whether there was another channel east or west of it. In Alexander's time, 250 years later, there is only one known channel past Babylon, but a number of Persian canals watered the country to the east, and one great artificial channel, the Pallacopas, left the right bank of the river a hundred miles below Babylon. Later the town of Hira, not far from the more modern Najaf, may have been on a western channel, but it was settled by Lakhmid frontier tribesmen and not the sedentary people of the Euphrates. It seems probable therefore that the division of the Euphrates above Babylon into a western and an eastern channel occurred between 100 B.C. and A.D. 600 (figs. 8, 14), though the Melcha canal, forerunner of the Malik, is sometimes referred to as a branch of the Euphrates by ancient writers.

From the accounts of Arab geographers in the Abbasid period the changes of the Euphrates channels can be traced more accurately. The division was then below Musaiyib, approximately as to-day, and the great navigation canals from the Euphrates to the Tigris, mentioned above, were in full operation. In the early Abbasid period the western arm (now the Hindiya branch) carried the greater volume of

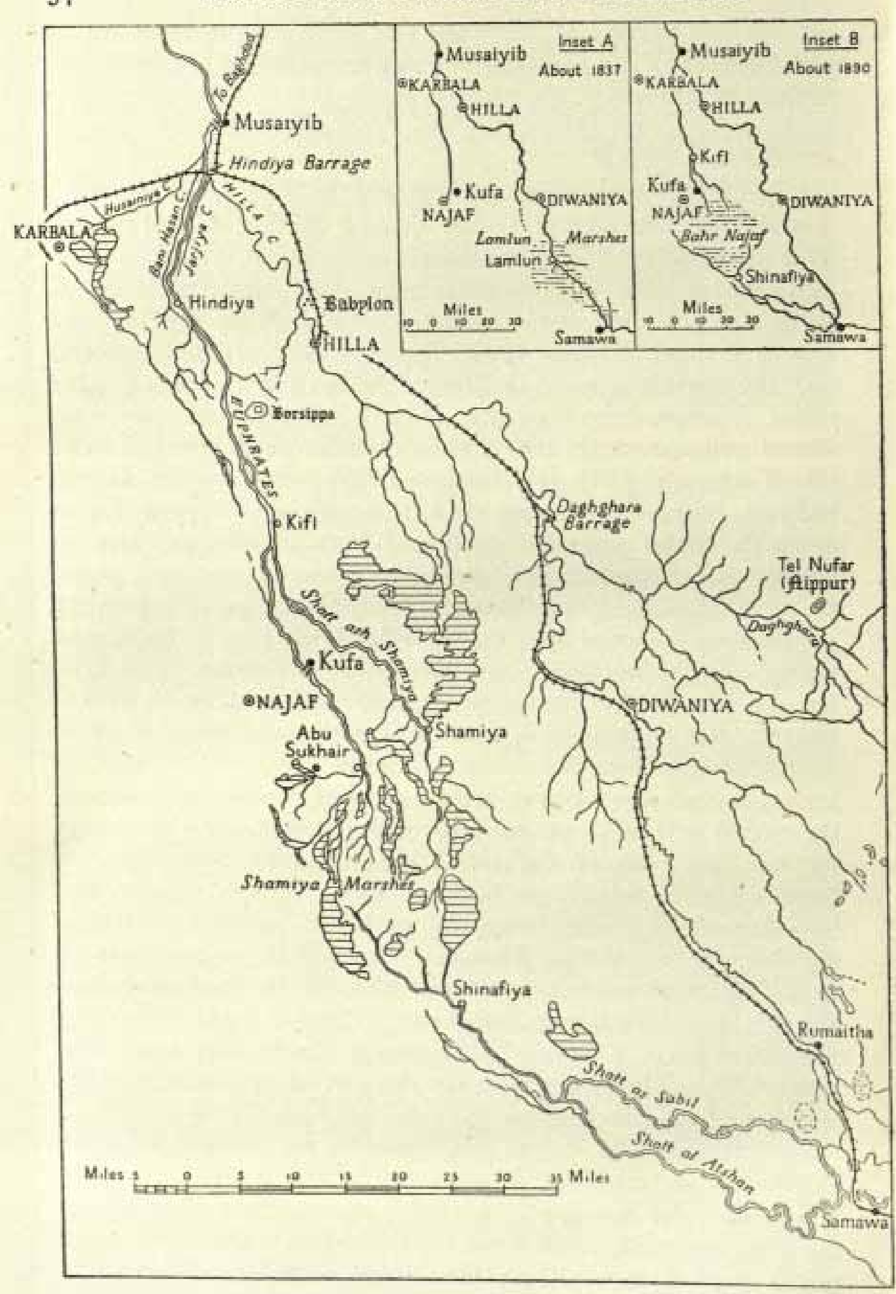


FIG. 8. *The Euphrates from the Hindiya barrage to Samawa*

water. Babylon had long been replaced by capitals on the Tigris; it was forsaken and forgotten, and its river-bed was occupied by a large canal, the Nahr Sura. By the tenth century this had already become broader than the western channel, and when in 1102 Hilla was built on its western bank the town quickly grew to importance. By the end of the twelfth century this eastern branch was again considered the main channel of the Euphrates and it remained so for 600 years, pouring its surplus waters by many distributaries into the Great Swamp. The western branch gradually dwindled and eventually silted up, until at the end of the seventeenth century it became necessary to excavate a new canal to take its place in order to carry water to the holy city of Najaf, an act of piety financed by an Indian Moslem. Meanwhile the large canals from the Euphrates to the Tigris were silting up and much more water passed down the Euphrates. The bed of the Great Swamp was also being slowly raised. The effect of closing the Isa (Saqlawiya) canal by Midhat Pasha in 1870 was felt almost at once. Year by year the canal to Najaf took more and more flood water, and within ten years it had broadened to become the main channel. Land along the Hilla branch began to go out of cultivation from lack of water for irrigation, and distress became so acute that efforts had to be made by the construction of a weir on the western channel to divert water back to the eastern. Unfortunately this step was taken too late and by 1909 the Hilla branch was only discharging 300 cubic metres per second compared with 2,000 which it had taken forty years before, and with 2,500 carried in 1909 by the Hindiya branch.

On the advice of Sir William Willcocks, who was called to advise the Turkish authorities, this weir was replaced by the Hindiya barrage, completed a short distance higher up the river just before the last war, and remodelled since. Details are given in Chapter X. The chief effect has been to restore an ample supply throughout the year to the eastern channel, which is now regulated and known as the Hilla canal. In addition, two other irrigation canals make use of the barrage: the Georgiya (Jarjiya) on the left bank and the Bani Hasan on the right, and the flow of the older Husainiya on the right bank is also regulated (fig. 8). The districts irrigated by these canals are shown on fig. 20. For further details see p. 437.

The following table gives the approximate average disposal of water supplies calculated for a normal September month (low-water season) before the Abu Ghuraib canal was regulated (1937). The figures are expressed in percentages of the total supply available at Hit:

Left-bank canals		*Right-bank canals*	
Saqlawiya	2·7		
Yusufiya	2·7		
Latifiya	0·4		
Iskandariya	1·0	Husainiya	3·0
Hilla	17·5	Bani Hasan	3·5
Georgiya (Jarjiya)	0·7		
	25·0		6·5

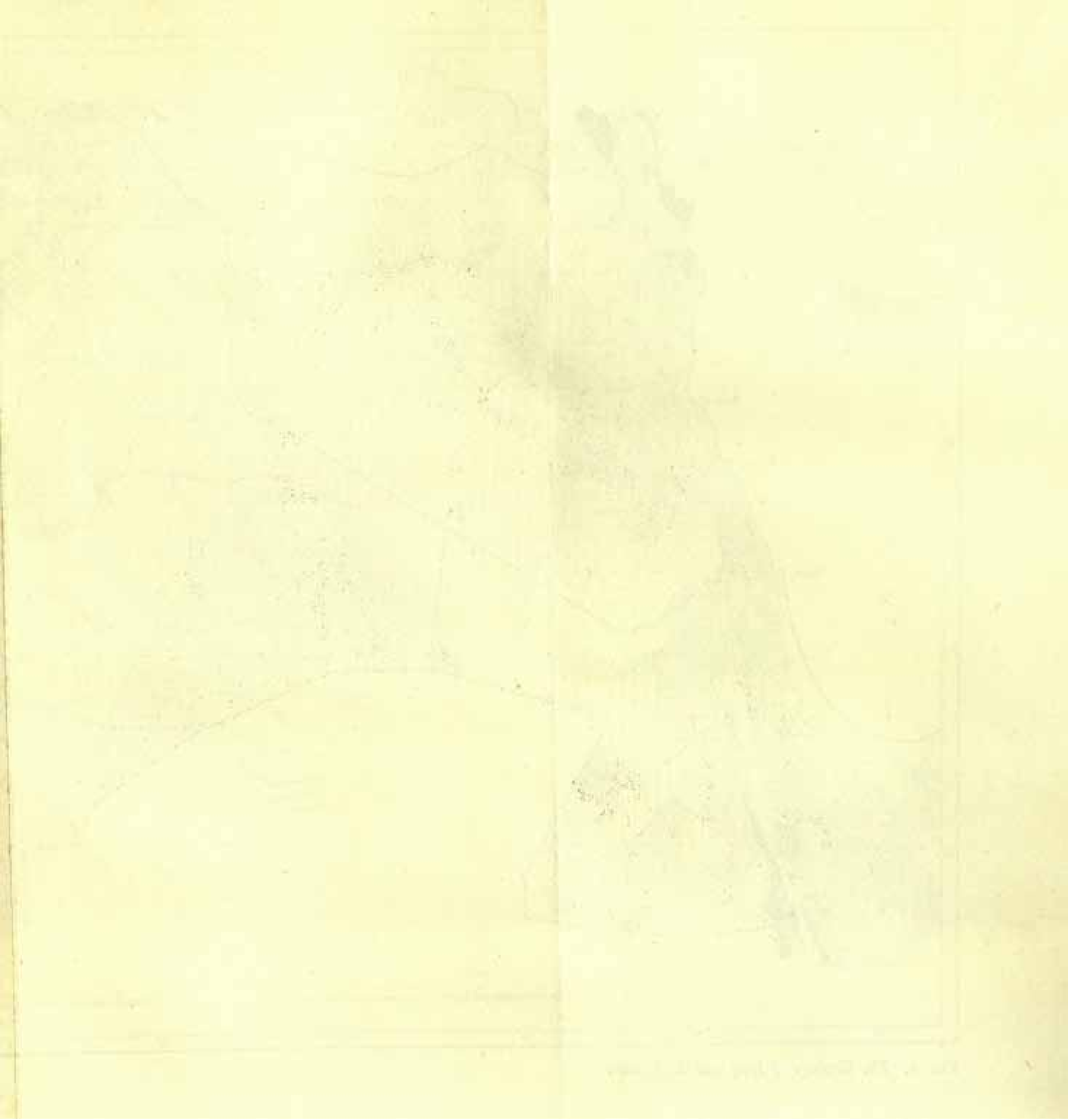
The canals therefore in 1937 altogether drew approximately 31·5 per cent. from the Euphrates above the Hindiya barrage in the low-water season. Lift irrigation to minor canals and direct to fields and gardens accounted for another 2 per cent. and evaporation was calculated at about 3·5 per cent. The amount that passed on down the Hindiya channel was therefore about 63 per cent. of the volume available at Hit. None of the water drawn off above the barrage in the low-water season finds its way back to the Euphrates lower down.

The Hindiya Barrage to Samawa (direct distance 115 miles; by Kufa channel 150 miles)

In Abbasid times almost the whole triangle of country between Kufa on the Euphrates, Wasit on the Tigris (Shatt al Gharraf), and Nasiriya was under the waters of the 'Great Swamp'. Though it is now impossible to reconstruct the detailed development of the two rivers, the chief changes in recent times are known from the accounts of travellers.[1] By the first half of the nineteenth century the eastern or Hilla branch of the Euphrates was a clear-cut well-graded navigable channel between Musaiyib (*c.* 100 ft.) and Samawa (*c.* 26 ft.), except through the Lamlun marshes—a remnant of the Great Swamp—where the channel was narrow, tortuous, and dangerous (fig. 8, *inset* A). When the main volume of the Euphrates broke into the Najaf canal it followed a single course as far as Kifl; there the waters divided into two channels which spilled southwards and formed a new marsh, the Bahr Najaf, restricted on the west by the desert escarpment (fig. 8, *inset* B). This marsh could therefore be drained back only to the lower level of the old river-bed at Samawa. Drainage was gradually forced into two or three channels more prominent than the rest, each with a small 15-foot waterfall (*naqara*) at its head. These falls rapidly eroded the soft alluvium upstream, lengthening the drainage channels and gradually restricting the area of the Bahr Najaf.

At the present day the river still divides at Kifl into two channels

[1] A suggested reconstruction of the development is given in fig. 14 (v, vi).



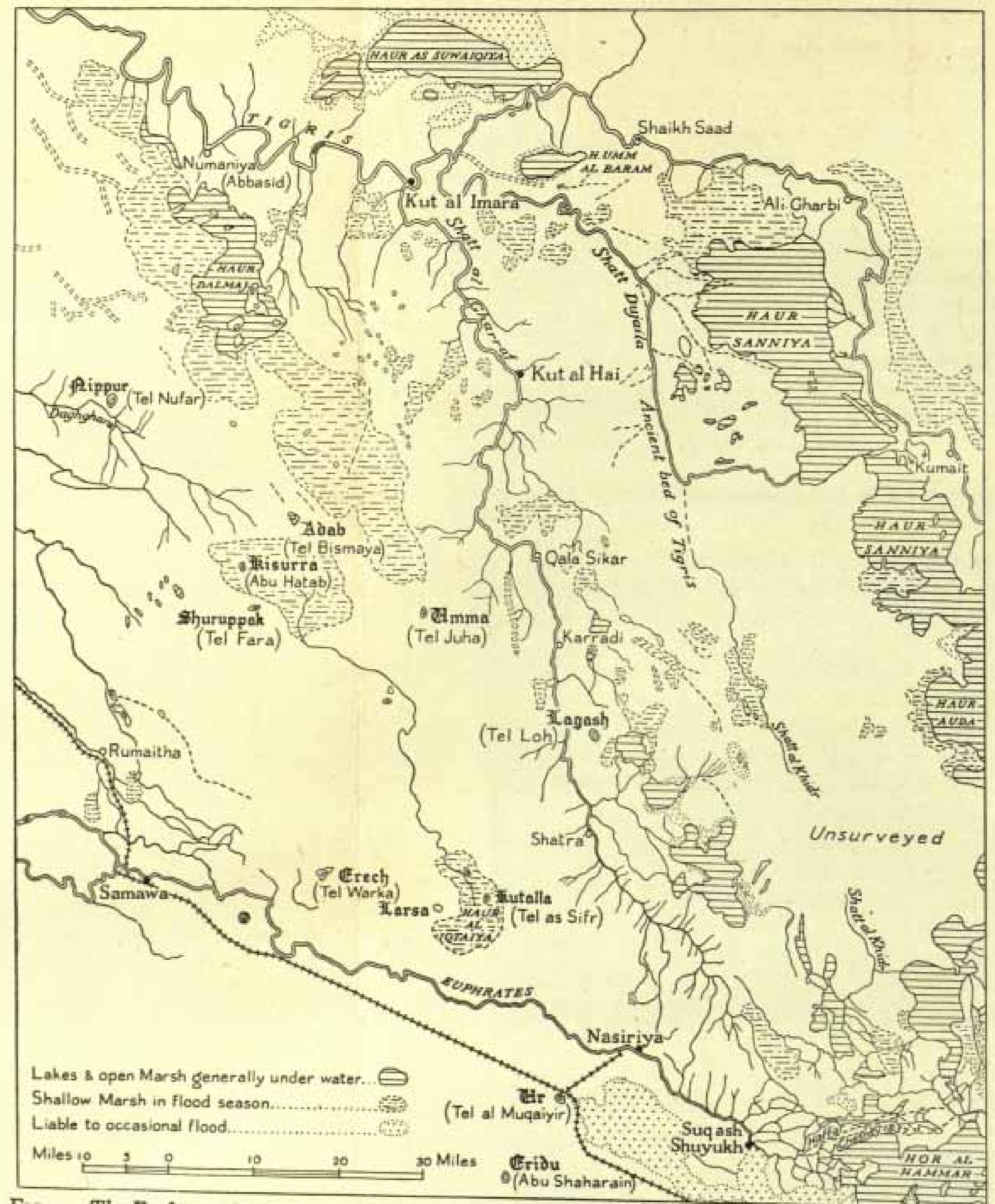


FIG. 9. *The Euphrates from Samawa to Nasiriya and the Tigris from Kut al Imara to Kumait*

which are clear-cut to Abu Sukhair and Shamiya, though much water is already drawn from the eastern channel above Shamiya (fig. 8). Below these two villages the banks are low, the water is dissipated into marshland, and in the flood season the land between the two channels and on either side for about 25 miles southwards is under water. But in the low-water months the marsh drains out into separate expanses of flood water, each with a different name,[1] and the drainage channels to Shinafiya and Samawa become distinct.

In the first reach below the barrage, Hindiya or Tuwairij is built mostly on the right bank, at the point where the road between Hilla and Karbala crosses the river. Flood marsh begins on the east bank about 10 miles to the south. Between Hindiya and Kifl the river reaches a width of 200 yards. Perennial creeks enclose Kifl on three sides, but in flood time the village is surrounded by water and can only be reached by a winding embankment, its solitary minaret affording a landmark. Of the two channels below Kifl, the eastern, or Shatt ash Shamiya, carries the most water; it varies between 50 and 150 yards wide. The western or Kufa channel passes close to Najaf. The marshes are much overgrown with reeds, but the land is under rice cultivation wherever possible.

The marshes are mostly drained by three main channels into a single bed at Shinafiya, but about 10 miles lower down two new courses are formed, the Shatt as Sabil (or Daghfaliya) and the Shatt al Atshan, which unite about 5 miles above Samawa. As this town is approached the river is enclosed by date plantations.

The old eastern bed of the river from the Hindiya barrage past Babylon, Hilla, Diwaniya, and Rumaitha is now occupied by the controlled Hilla canal. The banks are fairly high and well maintained, and the land on either side is comparatively well drained and affords a good route for roads and railways. About 20 miles above Diwaniya the Daghghara barrage controls water in an intricate network of small inundation canals in the eastern Diwaniya district (much of which is given over to rice cultivation), but the Hilla canal continues as a perennial stream below Diwaniya, its waters being gradually dissipated by irrigation. Only a very small proportion of the volume taken by this canal at the Hindiya barrage finds its way back by small creeks into the main channel of the Euphrates below Samawa.

The history of this section is of great interest to engineers, for it illustrates several fundamental principles of river drainage and erosion

[1] The name Bahr Najaf is now restricted to the comparatively small expanse of marsh west of the town of Najaf.

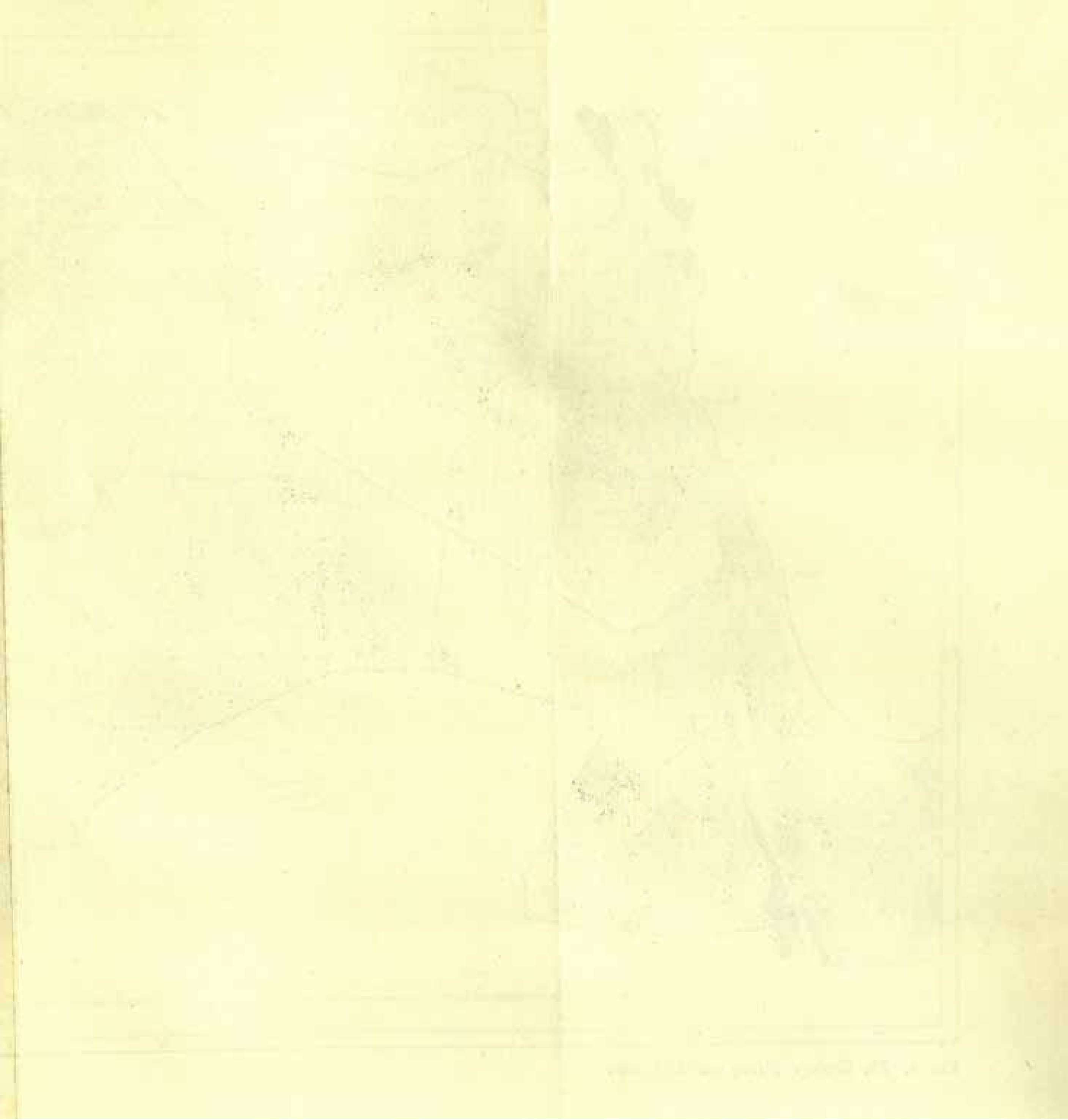
which must be taken into account by any central authority which has to deal with the settlement and well-being of the inhabitants. These principles can be used to advantage to assist the economical use of water and its proper distribution only if they are clearly understood; they are also of interest to the historian and may help him to trace out the course of the Tigris at certain periods of its history (p. 50).

Samawa to Nasiriya (direct distance 60 miles; by river 85 miles)

In this section the Euphrates now follows a single channel (fig. 9), the last overflow from the land irrigated by the Hilla canal entering the river by small creeks from the Haur Lafta about 15 miles below Samawa. Except for the demands of strips of lift-irrigated land there is little water drawn off from the river, which averages from 150 to 200 yards wide and is fairly easy to navigate. Beyond the cultivated strip on the south side the country is featureless except for occasional mounds of ancient sites, the most important, Tel al Muqaiyir, marking 'Ur of the Chaldees' (photo. 7), 12 miles south-west of Nasiriya. This plain affords an easy route for road and railway, the latter embanked over low ground. The whole country, including the river course, was under the Great Swamp in Abbasid times, and the Haur al Iqtaiya appears to be a remnant; but most of the area beyond the riverain strip has been drained and now has an arid aspect. As Nasiriya is approached cultivation on both banks increases, and on the north bank in particular the land becomes much intersected by small irrigation channels, many of them connected with the Shatt al Gharraf, but few have any water in them except in the flood season.

The Euphrates below Nasiriya (fig. 10)

At Nasiriya the water-level of the Euphrates is only 8·2 feet (2·5 metres) above sea-level in September, though the town is about 100 miles in a direct line from Basra. It is calculated that in the same month the discharge of the river averages only 37 per cent. of the water discharged at Hit; the rest has been drawn off for irrigation or lost in swamps or by evaporation. The average discharge per second in September is about 3,530 cubic feet (100 cu. m.) at Nasiriya compared with 9,180 cubic feet (260 cu. m.) at Hit. Just above Nasiriya and from there downwards numerous canals take off on both banks until the whole river is finally dispersed, the scattered waters gradually draining into the Hammar lake. These canals are only partially controlled by the cultivators; moreover the effect of the many losses



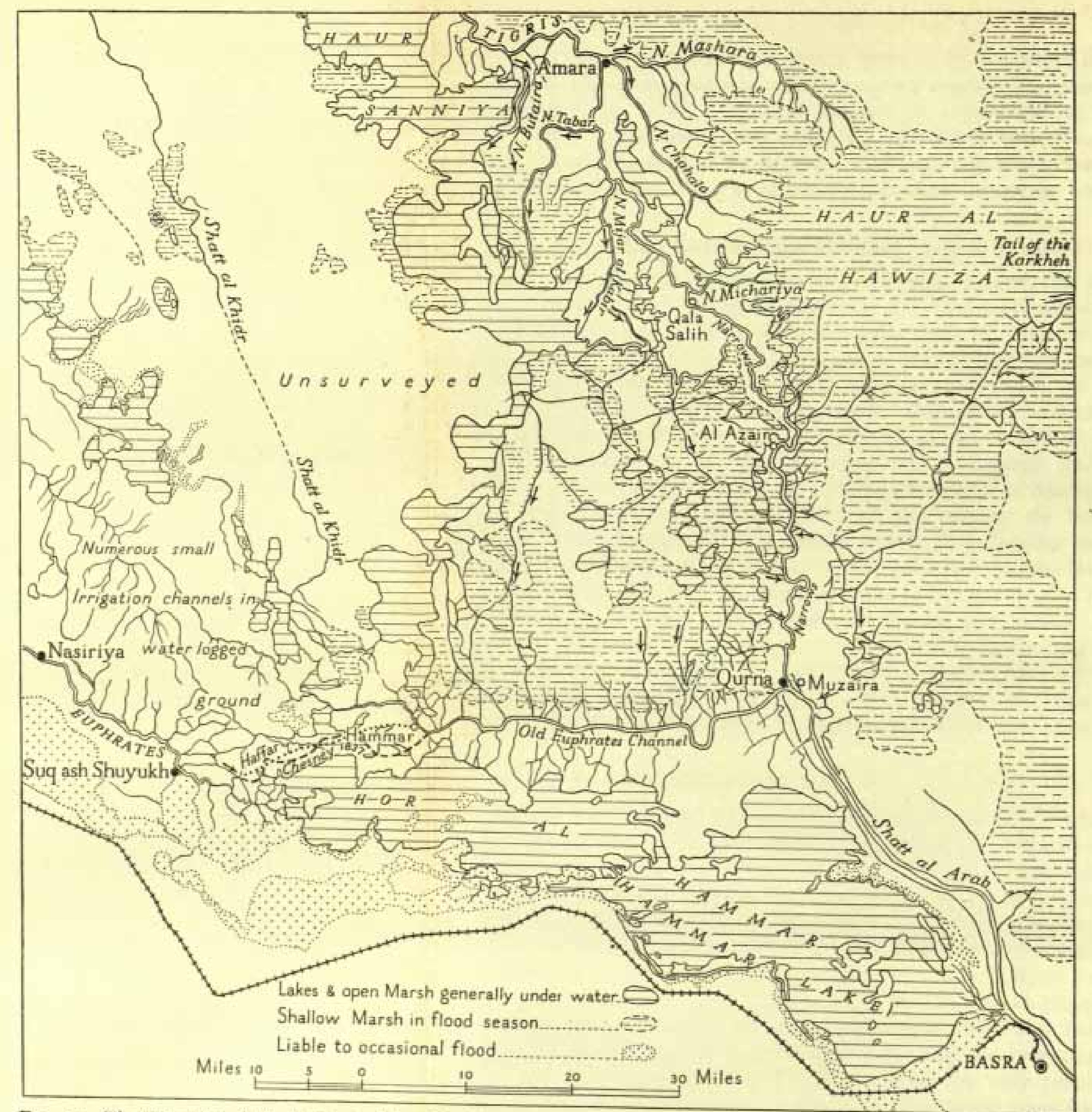


FIG. 10. *The Dispersion of the Euphrates below Nasiriya and of the Tigris below Amara*

of water in the flood season, especially in the Shamiya region, is to smooth out fluctuations and to reduce flood peaks, so that the river here is sluggish, though the normal difference between low- and high-water level in the river is still as much as 6 feet (1·83 metres: Septem-

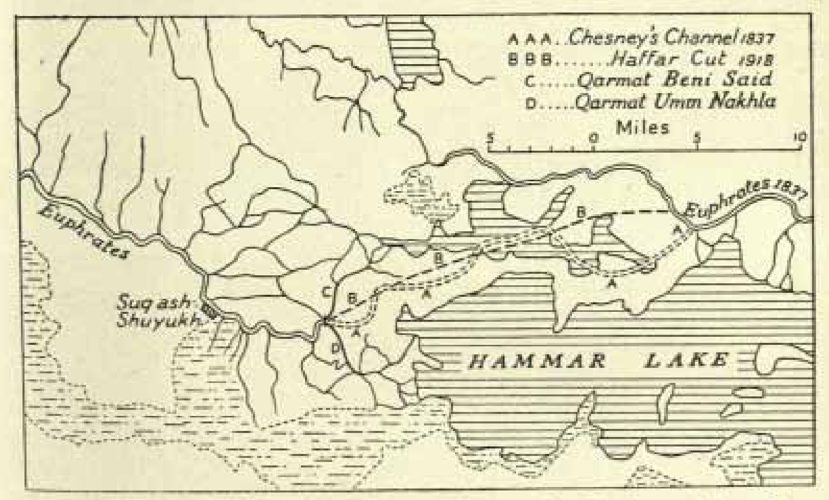


FIG. 11. *The Chesney and Haffar Channels of the Euphrates below Suq ash Shuyukh*

ber 2·55 m.; May 4·38 m.). On the other hand, below Nasiriya some water is brought in flood time by the 'tail' of the Shatt al Gharraf and much from the marshes west of the Tigris above Qurna.

In 1837 Chesney found a defined and navigable Euphrates channel from Nasiriya to Qurna, a state which appears to have lasted for another thirty years (figs. 10, 11). According to Willcocks, the channel in 1870 still joined the Tigris at Qurna. But soon afterwards the river, overburdened by an exceptional high flood from the Shatt al Gharraf, burst its right bank between Suq ash Shuyukh and Qurna, submerged the channel and lands surrounding it, converted the Hammar marshes into a wide expanse of lake, and broke a new outlet channel from this lake into the Shatt al Arab at Qarmat Ali, just above Basra. The old channel became silted up and unnavigable for 25 or 30 miles immediately below Suq ash Shuyukh. During the War of 1914–1918 an attempt was made to dredge the old channel and to connect it with a straight cut, the 'Haffar' channel, to the 'tail' of the river below Suq ash Shuyukh, but without any lasting success, for the river then scoured its bed above the dredged channel,

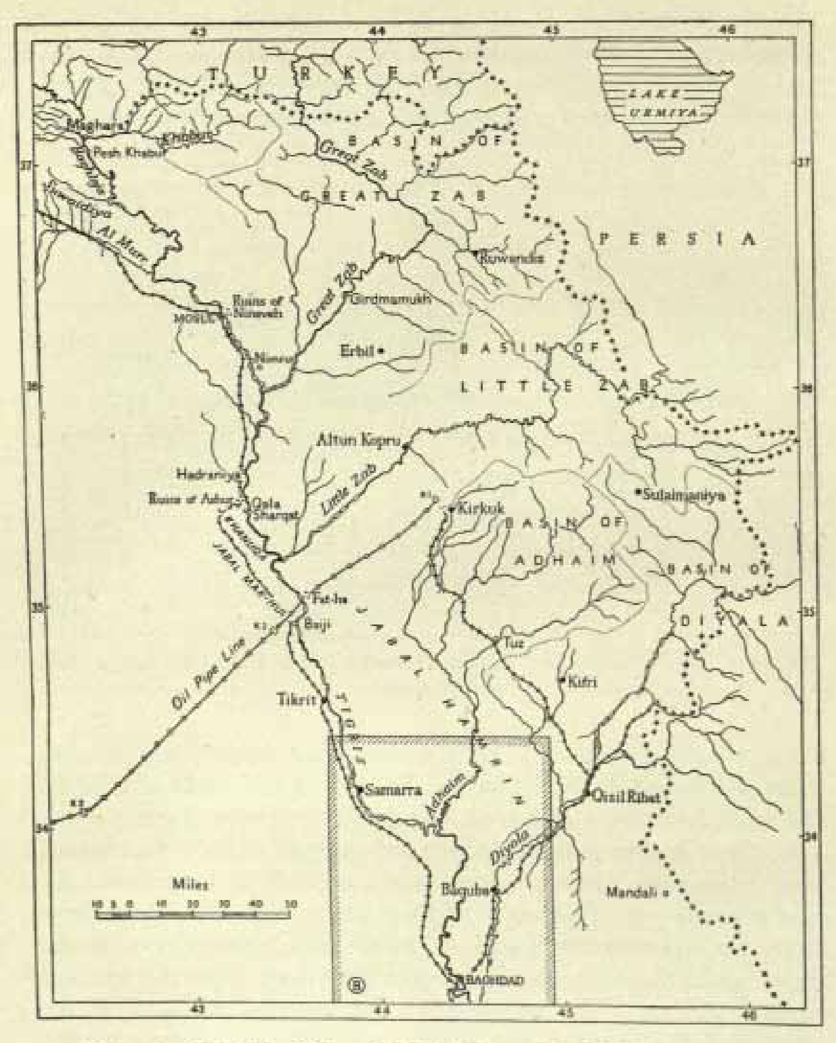


FIG. 12. *The Tigris from Pesh Khabur to Baghdad.* (*B*) *Fig. 13*

and the level in the Haffar channel fell. In 1927 the Haffar channel was therefore closed and the water was allowed to deepen the off-takes on either side.

The effective control and disposal of the lower Euphrates waters are extremely complicated. In May 1916 a British force at Nasiriya was isolated by flood waters which were only checked by using

every available man to heighten the embankments around their camps, while a raised earthen causeway was built to Ur to enable the troops to evacuate Nasiriya if the embankment broke.

At the present day, as in 1914, all the Euphrates water which reaches the Shatt al Arab uses the channel at Qarmat Ali, though some that enters the Hammar lake is lost by evaporation. On the other hand, across the old river channel from Suq ash Shuyukh to Qurna flows some of the water which has escaped from the right bank of the Tigris higher up its course, thereby swelling the volume of the Hammar lake. One of Willcocks's proposals before 1914 for the better regulation of the water was to rebuild the right embankment of the old course of the river between Suq ash Shuyukh and Qurna in order to deflect the Tigris overflow back into the Tigris at Qurna, using the old Euphrates channel, but this project has never been carried out.

(*d*) *The Tigris in Iraq*

The Tigris enters Iraq at Maghara (37° 07′ N., 42° 22′ E.), at the junction of its tributary the Khabur, about 3 miles up-river of Pesh Khabur, where the two rivers form the boundary. The current is strong and carries a great load of sediment from the Kurdish tributaries. Pesh Khabur is on the river at 1,160 feet above sea-level (fig. 12).

Pesh Khabur to Mosul (direct distance 68 miles; by river 125 miles)

From Pesh Khabur the Tigris forces a passage gradually through the low folded foothills of the Kurdish mountains. Its course to Mosul is made up alternately of deeply cut, narrow, winding reaches with southerly direction, where the current is swift and the river bed enclosed by rocky walls, and of south-easterly reaches, parallel to the direction of the hills and the 'strike' of their rocks (fig. 15), with broad and shingly bed and slackening current and with open country on the left bank. On the right bank the hills are fairly steep and form a barrier, and the open rolling slopes on the left are scored by minor torrent-beds, mostly only carrying water during the winter rains. Two longer right-bank spring-fed affluents, the Wadi Suwaidiya and the Wadi al Murr, lying parallel to the strike, add a little water throughout the year. The narrowest part of the river is the difficult Baghloja defile, about 18 miles below the Khabur junction, where the river is only 40 yards wide, the bed encumbered by rock ledges and boulders, and navigation by raft (*kellek*) difficult and dangerous.

Mosul to Qala Shargat (direct distance 60 miles; by river 73 miles)

Mosul, on the right bank of the Tigris, opposite the site of Nineveh on the left, has been by far the most important town in northern Iraq since the time of the Omayyad caliphs when it became the capital of their Jazira province. It is the main crossing-place of the Tigris in this area; its old floating bridge, so often renewed, was replaced in 1933–1934 by a new steel structure.

The average low-water height in September is 703 feet above sea-level, and the river is still within the foothill steppe region, confined within deep banks; it is thus able to take the normal high-water rise of 13 feet, and even the greatest recorded rise in the last 25 years (16·8 ft.), without danger to the countryside. The average discharge throughout a normal September is 5,300 cubic feet (141 cu.m.) per second, while the monthly average for April reaches 48,750 cubic feet (1,380 cu.m.).

Below Mosul the characteristics of the bed and course are similar to those above, but the hills are much lower, and there is more open steppe. The river is kept to a general south-south-easterly course by low hills on its right bank. About 30 miles below the town the Tigris is joined by the Great Zab, which has drained a large snow-fed mountain basin of about 7,700 square miles in Kurdistan (pp. 102–13). After leaving the mountains this torrential tributary flows in a rocky or shingly bed to its junction with the Tigris. It is fordable in the low-water season at many places, but in winter is subject to sudden rises and fluctuations, and its peak has been exceptionally recorded as early as February, because of rain. But its volume normally increases to a maximum at the end of April, and the discharge remains high throughout May, when the monthly average at Girdmamukh (28,500 cu. ft. per sec.; 808 cu.m.) reaches a maximum; it falls to 3,000 cubic feet (87 cu.m.) in September and October. The main body of its flood waters reaches the Tigris rather later than that of the Tigris itself, but the two floods overlap, and the effect of the Great Zab is to increase the discharge below the junction by two-thirds in a normal year.

Just above the junction are the ruins of Assyrian Calah, or Nimrud (p. 223), and near them a 'new town', Haditha, was built by the Omayyad caliphs. No town or village of any importance is here to-day. Below the junction the Tigris flows almost due south through open steppe country between adequate banks. It is encumbered by shingle at many places, particularly in the low-water

season, when it is occasionally fordable at certain points, though guides are necessary.[1]

At Qala Sharqat the Tigris in September is at about 482 feet above sea-level, having fallen over 500 feet from the Turkish boundary. The ruin mound of Qala Sharqat rises steeply to a height of 150 feet and marks the site of Ashur, the ancient capital of Assyria (p. 213).

Qala Sharqat to Tikrit (direct distance 64 miles; by river 78 miles)

At Qala Sharqat the Tigris meets the last barrier across its course before entering its delta. This is the Jabal Hamrin, whose two parallel components west of the river, the Jabal Khanuqa (1,272 ft.) and Jabal Mak-hul (1,616 ft.), are separated by a deep valley only 650 feet above sea-level. The Tigris flows close to their north-eastern foot, gradually biting into the rocks, and there is little room for a road. Open steppe country stretches away to the north-east, and there are the ruin mounds of a number of small towns on the left bank between Qala Sharqat and the Fat-ha gorge. About half-way between these two places the Little Zab enters on the left bank. Known to the Abbasids as the Majnun, 'the mad river', because of its impetuous flood-currents, it drains a mountain basin of about 5,750 square miles (pp. 100–2).

At Altun Kopru the average discharge of the Little Zab in September is calculated at 1,340 cubic feet (38 cu.m.) per second, and in March at 16,140 cubic feet (457 cu.m.). The maximum is reached nearly a month earlier than that of the Great Zab because the mountains in its basin are lower and the snow therefore melts earlier; moreover, it is from its January characteristics that it earned its Abbasid name, for it is much affected by rain.

About 16 miles below the junction of the Little Zab the Tigris breaks through the Jabal Hamrin at the Fat-ha gorge. Here the Iraq Petroleum Company's pipe-line crosses the river. The hills rise steeply on either side of the river, but the river just above the gorge is as much as 400 yards wide. It cuts its passage south-westwards, at right angles to the strike of the hills, and immediately afterwards near Baiji bends south-east and breaks up into a number of channels, enclosing bush-covered islands, a characteristic which continues to Tikrit. Baiji was of no importance until it became for a few years the terminus of the Iraqi railways.

[1] The river was forded by General R. A. Cassel's Cavalry Brigade in October 1918 at Hadhraniya, about 14 miles above Qala Sharqat, though a few men and animals were lost (p. 285).

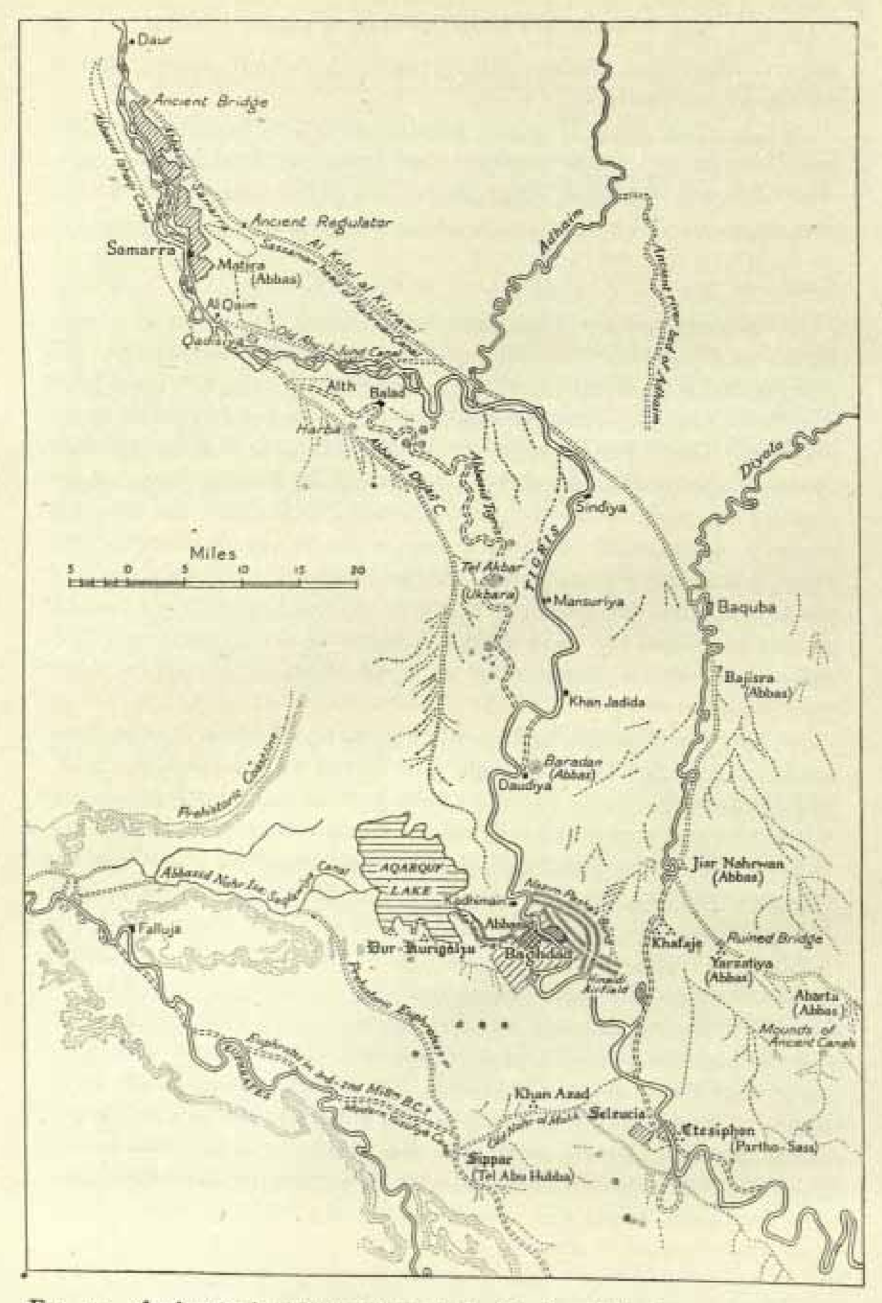


FIG. 13. *Ancient and modern courses of the Tigris and Euphrates near Baghdad. The ancient courses of rivers and canals are shown by broken lines*

Tikrit to Baghdad (direct distance 100 miles; by river 143 miles)

At Tikrit the Tigris is controlled by high conglomerate banks about 3 miles apart, the bed being scooped out of the bare plain on either side. The river flows close under the western bank, which for about 2 miles has 80-foot cliffs scored by ravines. It is about 250 yards wide at low water, but increases to 600 yards in flood. Tikrit was in being in the seventh century B.C. and became a centre of Christianity before the Arab period, during which it was counted as the northernmost town in Iraq proper. It was later famous for its churches and monastery. It is still a small town crowning the western cliffs.

From here southwards to Baghdad the river is of great interest, both to the geographer and to the historian, for in this section near Qadisiya the Tigris enters its delta and its course is known to have made at least two great changes. Moreover, its waters in the past fed an intricate system of irrigation, and populous towns stood on its banks and canals. To-day little remains except a few villages and a number of ruin mounds littered with broken pottery, some of which can be identified with ancient towns.

About 16 miles down-river from Tikrit, on the opposite bank and 4 miles below the small village of Daur, begins the upper reach (*Al Katul al Kisrawi*) of the ancient Nahrwan canal, cut by the Sassanid kings (photo. 10). Thence south for a distance of 16 miles the high eastern bank of the river is strewn with the ruins of Abbasid Samarra (fig. 13). Though a capital for little more than half a century (A.D. 836–892), the seven successive caliphs who lived there—mostly as prisoners of their Turkish bodyguard—built palaces and mosques and laid out pleasure-gardens, the plan of which is clearly revealed from the air to-day, though on the ground they appear as a jumble of mounds. The surviving walled town of Samarra is at the southern end of the complex, north of the smaller ruin-field of Matira which stood near a second head of the Nahrwan canal (photo. 121).

It is below Samarra and beyond the glass-manufacturing Abbasid town of Qadisiya that is centred the greatest interest. Much digging and research are still required before the river's history can be determined with accuracy, for, apart from its larger changes of course, the river is constantly undergoing minor development and eroding new channels. An outstanding fact is that along its present course no pre-Seleucid town has yet been identified south of Samarra, though the names of some that stood on its banks are known. Foremost of these is Babylonian Upi or Opis, and until this is fixed, the course in

Babylonian times must be largely conjectural. Opis is believed to be identical or connected closely with Akshak, an earlier Akkadian town, which there is some evidence to locate at the Khafaje mounds on the Diyala, 10 miles east of Baghdad (photo. 95). It seems possible therefore that in the second or first millennium B.C. the Tigris took a more easterly course than it does to-day, approximately along the line of the later Abu-l-Jund and Nahrwan canals to the Diyala near Khafaje (fig. 13). Then, still in this early period, the river occupied the present channel for an unknown distance below Qadisiya long enough to erode its bed through the conglomerate sill and to scour its bed above. In order to raise its level and prevent further scour a great dam was erected across the river, the waters of which were diverted southwards over the harder rock, where it cut a new channel west of the older and modern courses, while a smaller channel fed the older course from above the dam. If this interpretation is correct it would account for the origin of the upper part of the Nahrwan canal which was subsequently straightened, embanked, and furnished with a new intake near Daur by the Sassanid kings.

The westerly course of the Tigris was maintained during late Sassanid times, and for most of the Abbasid period (6th–12th centuries). Prosperous towns were built on its banks, the most important of which in the tenth century, Alth and Ukbara, are recognizable to-day, the first by a small village and mound, the second by an extensive mound, Tell Akbar. The fertile district to the west was watered by the Dujail canal, the course of which is plainly marked to-day by the embankments which successively enclosed it, by its numerous ruined off-takes, and by the great stone bridge near Harba which was built by the Caliph Mustansir in A.D. 1232 within ten years of the river bursting back into its older bed below Qadisiya. But whatever course it took to the east in earlier times, it no longer followed the Nahrwan canal to the Diyala after 1242, but left it just east of the Adhaim confluence and took a more southerly course, more or less as at present, re-entering its former western bed near the village of Baradan, 13 miles due north of Baghdad, which had been founded by the Caliph Mansur about 500 years earlier (A.D. 762) on the west bank of the Tigris (p. 243).

At the present time there are no towns and few large villages on the Tigris between Samarra and Baghdad; near the village of Balad, which stands on the left bank of the western channel and near the right bank of the modern river, the Tigris is to-day joined by the Shatt al Adhaim. This stream drains a comparatively small basin of

2,350 square miles in the outer hills, where little snow falls, and where even rain is not plentiful (fig. 12). Throughout most of the summer its wide shingly bed is either dry or only contains a small trickle of water; and since it is not dependent on melting snow, its maximum flow does not coincide with that of either of the Zabs, and it scarcely affects the Tigris. It is, however, an interesting river for the part it has played in the ancient irrigation scheme (p. 433), and for the clue that it may afford to an early channel of the Tigris, for at one period its lowest course was about 15 miles east of its present bed.

From the junction of the Adhaim southwards to Baghdad the strip of country between the Tigris and Diyala becomes very fertile, with many small but prosperous villages dependent on irrigation channels, fed from the Khalis canal and the Diyala. Water from the Tigris is also lifted for villages along its banks, such as Sindiya, Mansuriya, and Khan Jadida. From Mansuriya southwards the river has to be retained by an almost continuous embankment, to keep it within its course in time of flood, particularly on the west bank. The land here, between the present course of the Diyala and the old course of the Dujail canal—the latter now followed by the railway—is very low, and it is near Daudiya, about 22 miles up-river of Baghdad, that the embankment would be breached in a last attempt to save the city from disaster in time of maximum flood.

Baghdad is fully described in Chapter XII. The mean low-water level in October is 94·7 feet (28·87 m.) above sea-level, and the average maximum to which it rose during the period 1907–1932—generally in April but very exceptionally in February or even January—was 112·2 feet (34·2 m.) (fig. 4). The highest ever recorded was 115·9 feet (35·34 m.) on 1 April 1907, a rise of over 18 feet from its low-water level in the same year. The average monthly discharge varies from 11,900 cubic feet (337 cu.m.) per second in October and 106,650 cubic feet (3,020 cu.m.)[1] in April, but at peak periods it is considerably more. The greatest rise ever recorded in 24 hours is 9·2 feet (2·8 m.); this has occurred once in November and once in January; both were caused by rain. Fluctuation at Baghdad is caused

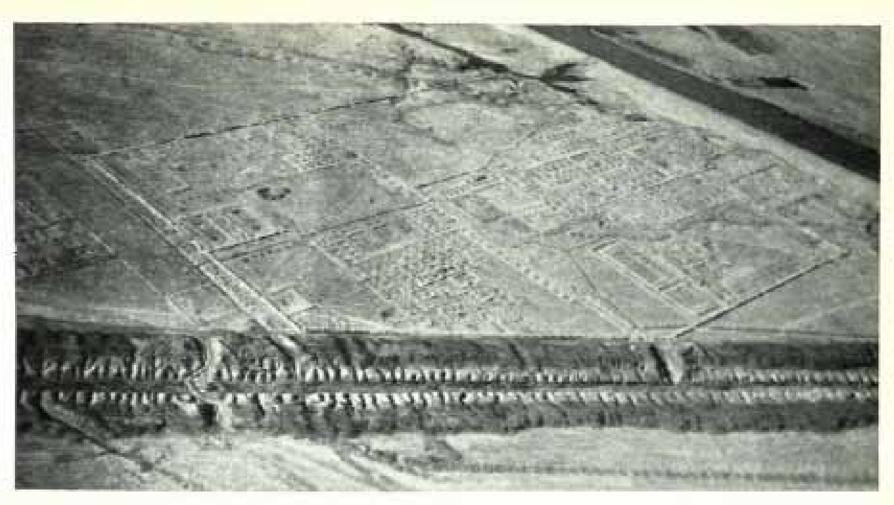
[1] It should be remarked that the average maximum discharge of the Tigris given above for Baghdad is greater than the sum of the discharges of the Tigris at Mosul, the Great Zab at Girdmamukh, and the Little Zab at Altun Kopru, which have been given. While the discharges of the tributaries at their junctions with the Tigris is greater than at Girdmamukh and Altun Kopru, and while some water is added by the Adhaim and by subsoil infiltration, an additional explanation of the discrepancy is that the observations at Baghdad cover a much longer period than the others, so that abnormal years have less effect on the means.

by the combined behaviour of the up-river tributaries, so that the number of peaks is considerable. A comparison of the records of the Tigris at Mosul, and of the Great and Little Zabs, shows that the last generally reaches its maximum flood at the beginning of April, the Tigris at Mosul in the third week of the month, and the Great Zab at the end of the month; and that the mean monthly maximum discharges occur in the Little Zab in March, in the Tigris in April, and in the Great Zab in May. These differences have the effect of prolonging the danger at Baghdad and in the delta over a much longer period than is the case of the Euphrates at Falluja (figs. 3, 4).

Baghdad to Kut al Imara (direct distance 103 miles; by river 213 miles)

The Diyala. Less than 5 miles from Hinaidi airfield on the southern outskirts of Baghdad, the Tigris receives its last important affluent on the left bank. The Diyala is unique among the Tigris tributaries in that during the low-water season its entire discharge is now diverted at its outlet from the Jabal Hamrin into irrigation canals (p. 439). From there the course of the river is south-west over an alluvial plain to the town of Baquba, and then southwards to meet the banks of the ancient Nahrwan canal. It follows these closely for 22 miles to the hamlet of Haujuna, close to the mound shown on earlier maps as Sifwe or Safwah, which marks the Abbasid town of Jisr Nahrwan, where the Khorasan road from Baghdad crossed the canal. Here the old canal turned south-east, and it has been suggested that this may have been an ancient course of the Diyala river before the canal was constructed. At the present day the Diyala continues on a south-south-westerly course to the Tigris, leaving the whole country to the east of it a cemetery of dead cities and canals (p. 434). There is no more promising region for detailed excavation and study than here, but only a beginning has yet been made. Near its junction with the Tigris the banks of the Diyala are 10 feet high and form a considerable obstacle.

From Baghdad to Kut al Imara the Tigris is extremely tortuous (fig. 7), so much so that while the distance by road is about 105 miles, it is 213 miles by river, a fact that was of considerable importance during the advance to Baghdad in March 1917 (p. 283). Some of the bends are so acute that river-boats on their passage down river have difficulty in rounding them when the current is strong. This section is indeed one of the most difficult of all for navigation by river steamers. Some of the meanders have been cut off and the 'ox-bow' depressions thus formed are cultivated. About 15 miles



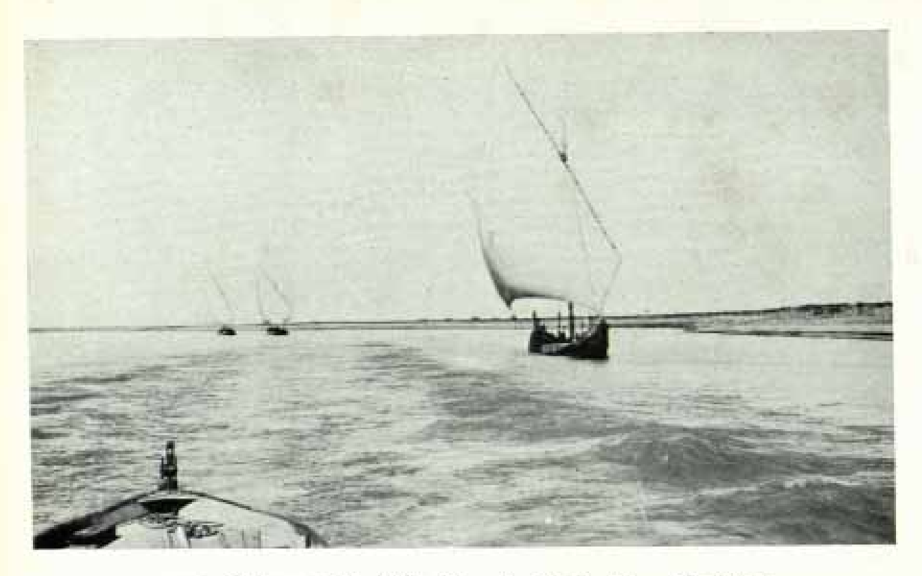
10. *Qasr Mutawakkil, the northern ruin of Abbasid Samarra, and the banks of the Nahrwan Canal near its head on the Tigris*



11. *Bed of the Nahrwan Canal (Katul al Kisrawi)*



12. *Site of Abbasid Qadisiya on the Tigris below Samarra*



13. *Safinas under full sail on the Tigris below Baghdad*

14. *Site of the new bridge over the Diyala at high water, with the old pontoon bridge behind, near the junction with the Tigris*

below the Diyala confluence the Arch of Ctesiphon marks the Partho-Sassanid capital, successor to Seleucia on the opposite bank (p. 232); it remains in sight of a river steamer coming up-stream in the flood season, sometimes ahead, sometimes astern, for the greater part of a day. The river in this section has an average fall of 1 in 15,000 compared with 1 in 14,500 between Balad and Baghdad, and with 1 in 2,000 about Samarra. The width varies between 250 and 350 yards. The riverain belts are mainly irrigated by oil pumps, a method which has developed at a very rapid rate since 1918. On the left bank is the now barren plain, once fertile and watered by the Nahrwan canal, and beyond that a low-lying area running at its south end into the Haur Suwaiqiya, into which flow the waters of many minor streams from the hills. The advance of the Tigris and Diyala deltas has cut off these streams from direct access to the main river, though some of their waters reach it by subsoil drainage in the low-water season.

The country on the right bank is much more intersected by channels and irrigation cuts than the left, and great care has to be exercised to maintain the embankment in good order. The drainage channel of the Aqarquf lake, which is fed by the Saqlawiya (p. 30), enters the Tigris as the Mahsudiya or Nahr Washash at the first westward loop south of Baghdad (fig. 13); even when not carrying water it forms a considerable obstacle, with 9-foot banks. South of it the desert is marked by the derelict banks of ancient canals, by numerous ruin-mounds, and near the river by irrigation channels. Breaks in the river embankment at the southern end of any loop in high flood would almost invariably put large tracts of land under water and link up the various marshes (*haurs*) into a continuous sheet.

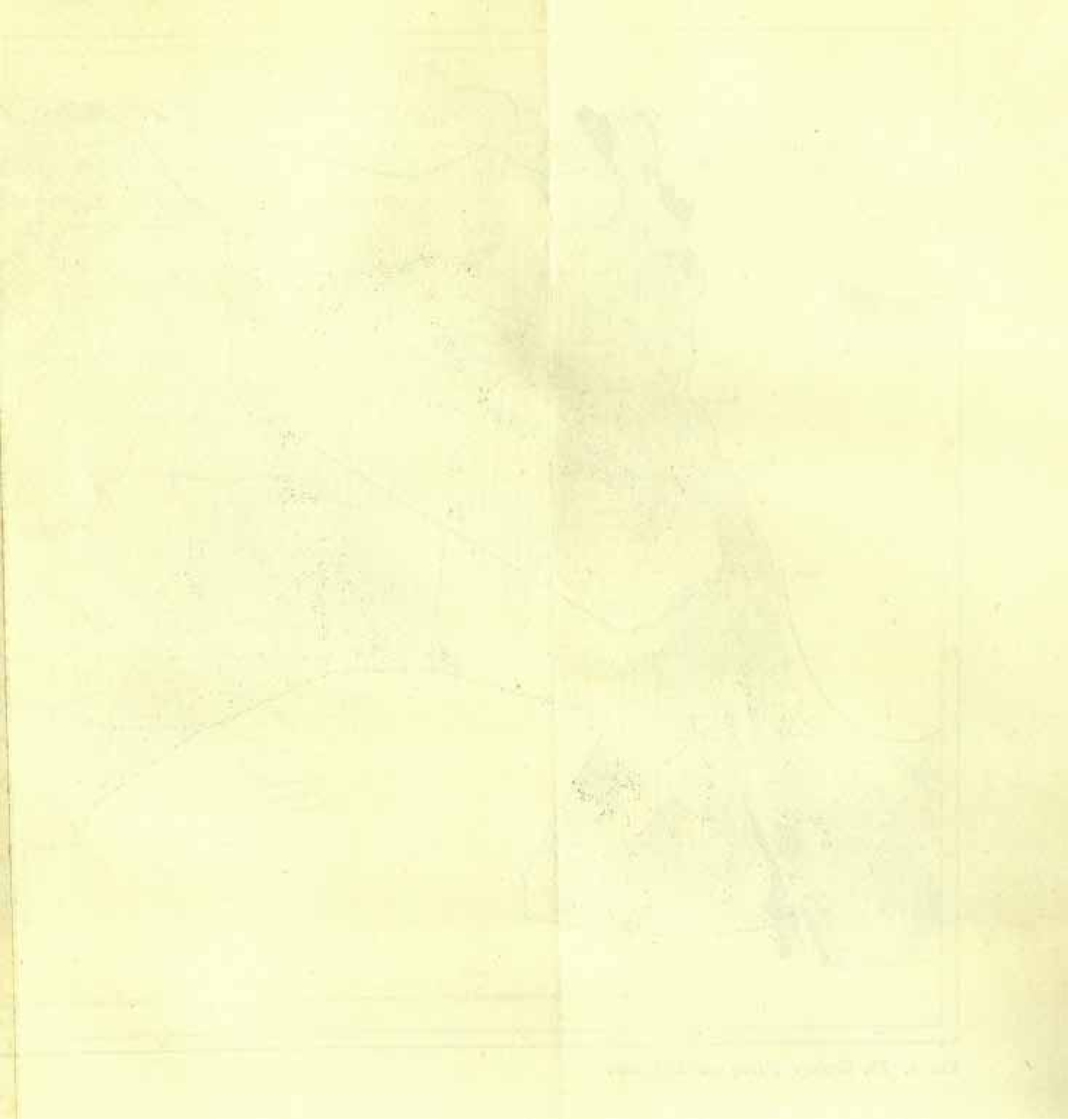
Kut al Imara to Amara (direct distance 90 miles; by river 126 miles)

The Tigris at Kut al Imara is particularly interesting because at or just below the town there have been at least two great changes of the river within historical times (fig. 9). Apart from minor changes near the present bed where loops have been cut off and the river has eaten into its banks, there are three clearly marked natural courses with low marshy ground between them: the present channel, the Shatt al Gharraf or Shatt al Hai, and the Shatt Dujaila—the 'Dujaila depression' of the Kut campaign in 1916—which now ends in the Haur Sanniya, but at one time flowed south by the Shatt al Khidr. Some interesting geographical problems await solution here. It is known that the Abbasid town of Madharaya stood on the Tigris

approximately in the position of Kut al Imara and that in Abbasid times the Nahrwan canal rejoined the Tigris close to it. The river then flowed approximately along the course of the present Shatt al Gharraf, past the city of Wasit into the Great Swamp (p. 31). Arab geographers and historians record that the Tigris took this course as its main channel about A.D. 635, having abandoned a more easterly bed, and that it was able to maintain this new course in the confused years following the Arab conquest. Wasit was founded in A.D. 703 on its banks and remained throughout the Abbasid period one of the most important cities of Iraq. The Tigris reached the Great Swamp by five navigable waterways below the city, and there was a navigable channel through a succession of lagoons to the Shatt al Arab. Unfortunately, the exact site of Wasit is not known, though it was probably in the neighbourhood of Kut al Hai. The Tigris is known to have again changed its main channel during the first part of the sixteenth century, and to have then taken its present course to the east.

It seems therefore that the chief channel in pre-Abbasid times must have been the Shatt Dujaila, and it would be interesting to know the exact site of Madharaya, and who built the high Sinn canal banks near the first bend of the Shatt Dujaila. Are they the terminals of the Nahrwan canal? How long did the Shatt Dujaila form the principal channel of the Tigris? It must be emphasized that when a river changes its main course in delta lands it does not immediately take a defined bed, unless it breaks into an existing channel, natural or artificial; on the contrary, it spreads over the flat land and forms marshes, which are gradually drained to lower ground by channels working upwards and cutting beds into the soft alluvium. This process has already been mentioned when describing the river changes on the Euphrates below Musaiyib (p. 36), and a glance at the map (fig. 9) shows how it has operated here on the Tigris. The Euphrates channel for most of the way from Nasiriya to Samawa is probably an illustration of the same process on a grand scale, the Great Swamp having been drained southwards during the last 500 years, after the Tigris at Kut broke into its present eastern course and ceased to supply the Great Swamp except in high flood. Since that time the Tigris waters have been dispersed in the low ground on either side of its new course, an operation that is now taking place near and below Amara (p. 52).

The Tigris at Kut al Imara is only 39·6 feet (12·08 m.) above sea-level in the low-water month of October, but it rises in April to a



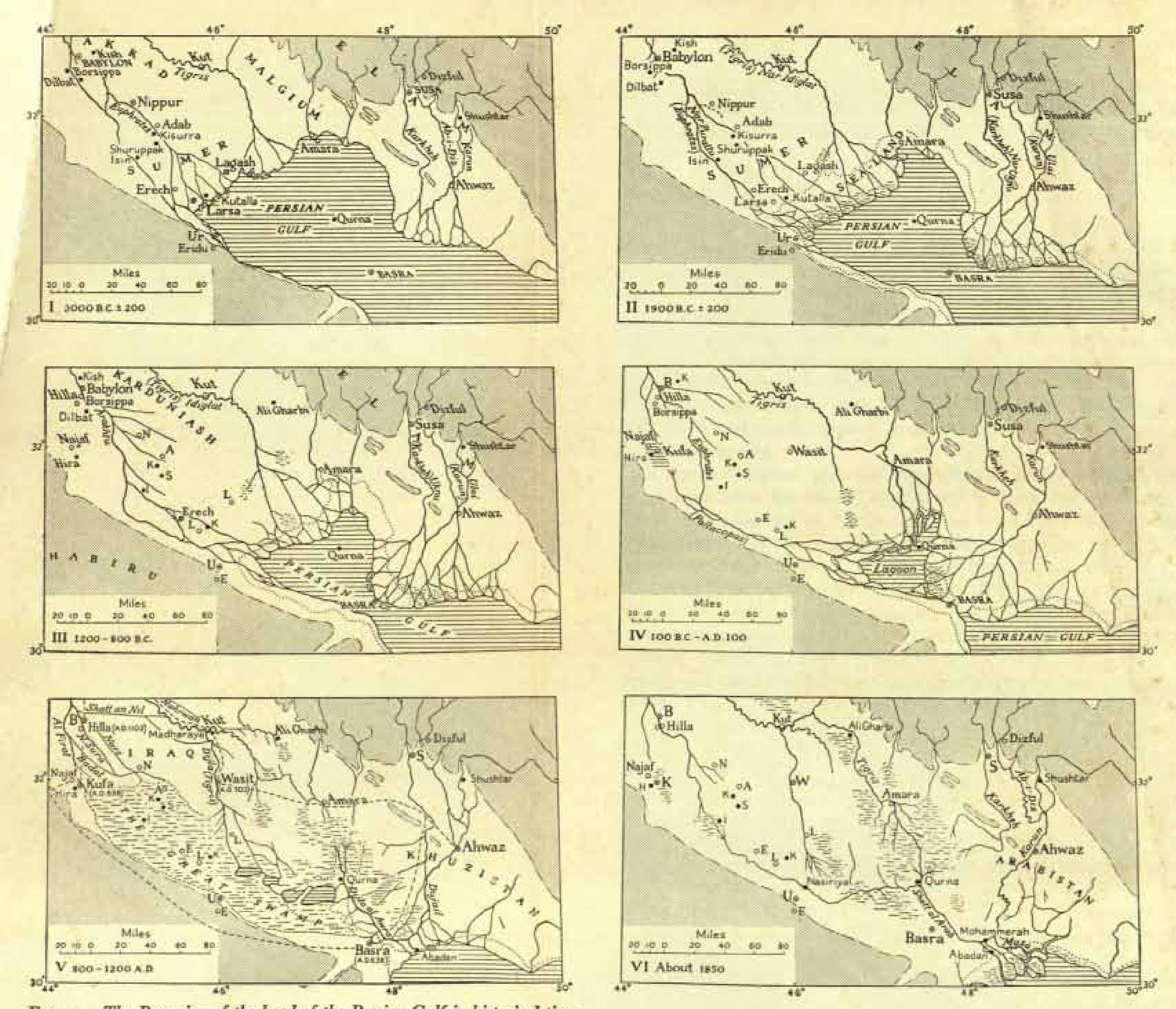


Fig. 14. *The Recession of the head of the Persian Gulf in historical times.*

Place-names in backward sloping type are those of towns not yet founded; those in upright type are of towns in being at the period stated on the map; places shown by initials have either disappeared or are inhabited now only by a few persons. Land approximately above 500 feet is shown stippled.

monthly mean of 56·0 feet (17·07 m.), and at any time in March, April, or May it may reach 59 feet (18 m.). The highest recorded was 61·3 feet (18·68 m.) on 3 April 1926. This flood-head commands a vast area of country.

Among his other proposals for the irrigation of Iraq made to the Ottoman Government in 1911 Willcocks proposed to erect a barrage across the Tigris below Kut al Imara, and a regulator across the head of the Shatt al Gharraf, which was to be developed as a perennial canal. The scheme was revived in 1932, and both barrage and regulator were begun in 1935. Before this date the Gharraf only took water from the Tigris when the level rose to 42·7 feet (13·0 m.), so that from August to November the bed was generally dry, though in high flood its waters reached the Euphrates near Nasiriya (p. 38). The new barrage, which was completed in 1940, is designed to hold up the water-level to 56·7 feet (17·3 m.) and to take flood-levels of 65·6 feet (20 m.) when all gates are drawn (photo. 166). This permanent head of water will cause the Gharraf to become perennial (p. 438).

From Kut to Amara the river is less winding than between Baghdad and Kut, and its slope is much flatter—1 in 29,000 compared with 1 in 15,000. This fact is evidence that the present course below Kut is younger than the course above. Irrigation, which upstream of Kut is almost entirely by lift, now begins to be by free flow, though, excepting the Shatt al Gharraf and the Butaira channel near Amara, none of the canals draw water during the six to nine months of lower levels. During the flood season, however, large quantities flow off through channels on either bank to irrigate the fields and afterwards to form vast marshes. The most important of these marshes is the Haur Sanniya, which in April extends almost as a continuous sheet of water from near Shaikh Saad to Amara, with a depth varying from 2 to 8 feet. There are no towns on the river, but Shaikh Saad, Ali Gharbi, and Kumait are market villages of some size, prominent during the campaign of 1916. Shaikh Saad is a small river-port; Ali Gharbi, surrounded by date plantations, is only 17 miles from the boundary near the Persian foothills.

Just upstream of Kumait a channel links the Haur Sanniya with the Tigris, feeding the marsh in the flood season and the river from the marsh in the low-water months. From the Haur Sanniya another channel has cut a bed westwards to capture the Shatt Dujaila, thus beheading the Shatt al Khidr (fig. 9).

Amara is the most important town between Kut al Imara and Basra. About 10 miles above it the first and largest of several perennial

channels, the Nahr Butaira, draws water from the right bank and there are a number of smaller channels between it and the town (fig. 10). Immediately above the town on the left bank are the heads of the Nahr Mashara and Nahr Chahala. It is near Amara that the Tigris begins to disperse.

From the records of discharge at various points on the river it is calculated that the Tigris at Mosul in October contributes 45 per cent. of the volume discharged at Baghdad, the Great Zab 26 per cent., and the Little Zab at Altun Kopru 13 per cent., a further contribution of 22 per cent. being accounted for by springs and seepage, the whole suffering a loss of 6 per cent. through evaporation. But unlike the Euphrates below Hit, the Tigris maintains a high discharge right down to Amara in the low-water season, having a net loss of only 4 per cent. between Baghdad and Kut, and regaining it by the time the Nahr Butaira is reached because of the high rate of subsoil infiltration back from the marshes when the river is low. But the effect of the Butaira, Mashara, and Chahala draw-offs is very marked: the Butaira takes 26 per cent. of the discharge, and the other two 35 per cent. between them, leaving only 39 per cent. of the Baghdad discharge in the river downstream of Amara. These figures will doubtless be modified now that the Kut barrage is completed and the Shatt al Gharraf has become perennial.

Amara to Qurna (direct distance 60 miles; by river 90 miles)

The three channels mentioned above are partly regulated, and their waters are used for rice irrigation before being dispersed in swamp. The reduced discharge in the river channel is at once noticeable both by the loss in velocity and by the reduction of the width between the banks. Just as the flood-rises on the Euphrates are smoothed out below Suq ash Shuyukh because of dispersal, so here there is less difference between the peaks and between the monthly averages. The river-level in October is 18·2 feet (5·56 m.), and rises to a maximum monthly mean of 23·8 feet (7·25 m.) in April. The peaks are rarely more than 1 or 2 feet higher, and the absolute maximum ever recorded, 25·5 feet (7·76 m.), occurred in January 1926 and was caused by rain.

It has been noted above that at Amara only 39 per cent. of the Baghdad discharge is left. Between Amara and Qala Salih, 34 miles down river, the Nahrs Tabar, Mijar al Kabir, and Michariya—the first two on the right bank, the last on the left—draw off another 20 per cent. In all, 81 per cent. of the discharge at Baghdad is thus

15. *'Ezra's Tomb', Azair*

16. *Qurna in the flood season*



17. *Marshes near Qurna*



18. *A creek near Basra*

dispersed in this area west and east of the section between Amara and Qala Salih, and only 19 per cent. passes on down the navigable channel. Moreover, the eastern marsh, the Haur al Hawiza or Haur al Azam, also receives almost all the discharge of the Karkheh. Thus this whole area on both sides of the river from Amara to Qurna acts as a vast settling tank.

Between Qala Salih and Azair ('Ezra's Tomb') occur 'the Narrows' —the narrowest part of the whole river, and the most difficult to navigate. But below the latter place the channel becomes rather easier except at one difficult bend because water begins to re-enter the river, particularly in the low-water season, thus increasing the discharge and scour.

The Shatt al Arab

From about the fifteenth century until the second half of the nineteenth, the Euphrates joined the Tigris at Qurna, and the Shatt al Arab maintained a navigable channel of their combined waters through the deltaic muds of the Karkheh and Karun to the Persian Gulf. To-day the flood-waters of the Karkheh mingle with the left-bank overflow of the Tigris and having deposited their silt enter that river above and below Qurna. The Karkheh no longer joins the Karun, with which it built the deltaic bar, and the Karun now joins the Shatt al Arab independently at Mohammerah, 20 miles below Basra. In Abbasid times the Persian Gulf had already been reclaimed as far as Abadan and the separate mouths of the Karun and Tigris were joined by an artificial canal, cut for navigation between Basra and Ahwaz. As the Shatt al Arab pushed the delta seawards, the Karun also took a more easterly course, marked in the eighteenth and early nineteenth centuries by the Khor Musa, though the two rivers near their mouths were probably connected by tidal creeks. Then the Karun forsook the Khor Musa and chose as its main bed the old Abbasid navigation canal below Marid, a course to which it still holds (figs. 14, v, vi; 39).[1]

From Qurna downwards the Shatt al Arab is a broad stately river, generally not difficult to navigate for large sea-going vessels, except at the bar near its mouth (p. 559). Groves of date-palms line the left bank all the way to the Persian boundary below Basra and beyond; on the right bank the groves are more scattered until Qarmat Ali is

[1] This last reach is still known locally as *Al Haffar*, the 'dug-out' channel, thus indicating its artificial origin (cf. the *Haffar* channel below Suq ash Shuyukh, p. 39).

reached. Here the Hammar lake discharges the Euphrates waters into the Shatt; beyond it the suburbs of Basra—the airport, Maqil, Jubaila, and Ashar—follow in quick succession; Tanuma stands opposite Ashar on the left bank; Basra itself is about 2 miles inland on the right. The richest and densest date-groves in Iraq territory are on the right bank of the river below Basra, where an almost continuous belt of palms, from 1 to 2 miles wide, borders the river to Fao. These groves are intersected with numerous tidal creeks, irrigation channels, and mud embankments, which form a serious obstacle, particularly in wet weather.

The Recession of the Head of the Persian Gulf

In the foregoing account of the Tigris and Euphrates the principal historical changes of course have been briefly mentioned, and some remarks have been made on the processes by which these changes have come about. Before the long history of this 'sea-land' of lower Mesopotamia can be properly understood, the coastline at different periods must be examined. The six maps shown in fig. 14 have been drawn on the basis of normal delta-forming processes, and on two principal assumptions, namely, that the ancient Sumerian cities, Eridu, Ur, Larsa, Kutalla, and Lagash, whose sites have been discovered and surveyed, were founded near the head of the gulf about 3,000 B.C., and that the rivers have brought down since that time approximately the same amount of silt as they do to-day. Excepting the last map, none pretends to accuracy at a particular date, but each illustrates the general conditions prevailing within one or two hundred years. Creeks in recently formed deltas constantly shift their channels; these are generalized on all the maps except the last to illustrate the type of delta formation at the particular period and not the actual courses of the creeks; but the periods have been chosen to show the major changes of course above the 'wet deltas' and below Kut al Imara on the Tigris and Musaiyib on the Euphrates; they also illustrate how the new courses may have been developed by natural causes. Many of the more recently abandoned channels can be picked out on the ground and on modern large-scale maps.

One of the most interesting events in the recession of the head of the gulf is the date when the Karkheh–Karun delta reached the Arabian shore and formed a barrier enclosing the waters of the Euphrates and Tigris. This would appear to have occurred between 500 and 300 B.C., both from geographical and historical evidence. Strabo (*c.* 5 B.C.) writes that 'the overflow of the water, falling into

the plains by the sea, makes lakes and marshes and fens';[1] and in rejecting Eratosthenes' theory (*c.* 250 B.C.) that the marshes drain by percolation to Coele-Syria because of the mountains, he adds: 'but these marshes are near the Persian Sea, and the isthmus which separates them is not wide or rocky'.[2]

(*e*) *The Pattern of the Mountains*

An outline of the geological history of Iraq (p. 13) shows that all the country south-west of the Euphrates and possibly part of the south-western Jazira is controlled by the Arabian basement. Beyond this basement, both north and north-east of the delta lands, the sedimentary strata thicken until they reach a depth more than ten times greater than in the south-west. These beds have been bent into folds resembling petrified ocean swell. The outermost folds rise from the plains as gentle and regular features. Many of them north-west of the Diyala are similar, but some are higher and steeper than others. Towards the Persian frontier in Kurdistan the regular folds are replaced by numerous wrinkles which in turn give way to slabs of disturbed strata packed like tiles on the roof of a house, each slab dipping north-eastwards and with its south-western edge resting on its neighbour. Their present position is the result of more complex processes, the rock sheets having been forced in from outside Iraq. Their line of overlap upon the simpler folds—'the nappe front'—is shown on fig. 15.

Of the simpler folds nearer the plains, many can be traced north-westwards of the Diyala for long distances, for beyond the Great Zab, also, folding is generally of simple type. West of the Tigris, north and south of Mosul, some can be traced far into the Jazira as low ranges separated by many miles of plain. One such fold, the Jabal Sinjar of Iraq, enters the Syrian Jazira as the Jebel Jeribeh, and is distantly related to the Jebel Bishri beyond the Euphrates towards Palmyra. All these structures, particularly those along the Persian border, are important factors in rendering some regions inaccessible, whilst economically they are sought for, since oil has often been found to accumulate in such crests.

The outer folds may be arranged in chains trending approximately from south-east to north-west, until north of Mosul they begin to swing from east to west (fig. 15).

The *first chain* on the edge of the Tigris plains runs from just

[1] 16. 1. 9. [2] 16. 1. 12.

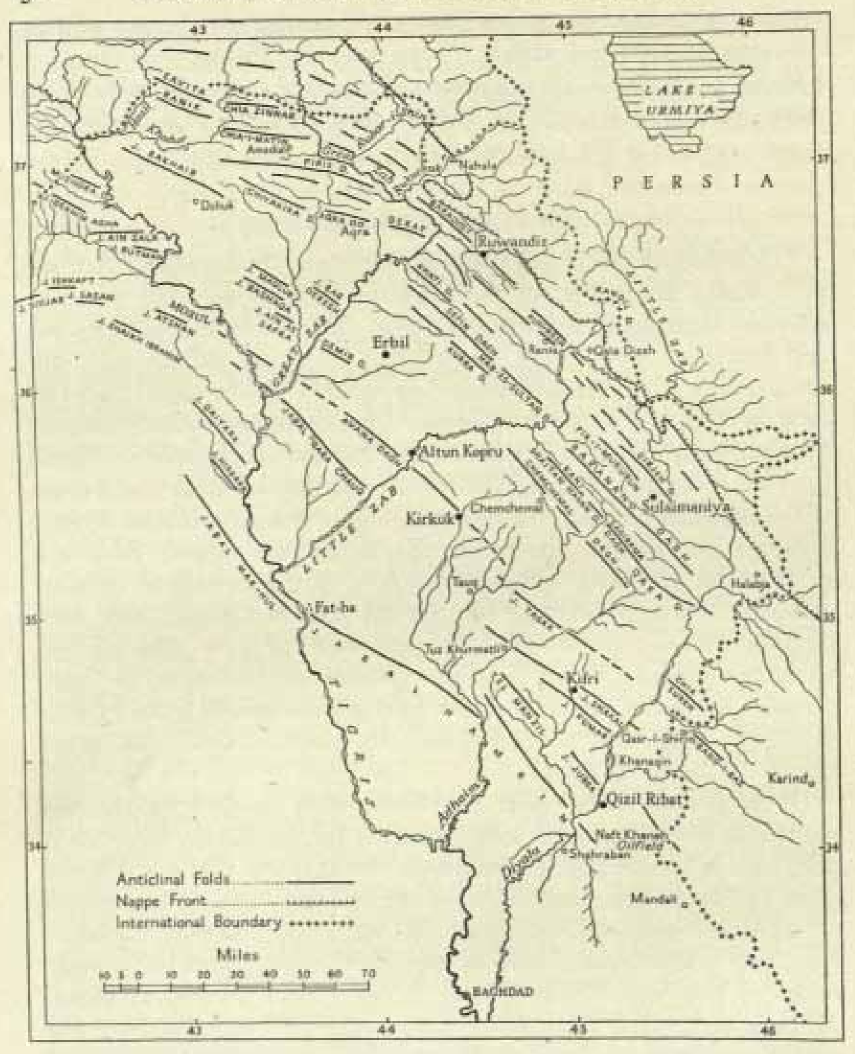


FIG. 15. *The Mountain Folds and the Nappe Front*

north of Shahraban on the Diyala to Fat-ha on the Tigris and for about 60 miles beyond. The southerly unit, broken by the Adhaim, is known as the Jabal Hamrin, the northern as the Jabal Mak-hul. South-east of the Diyala a number of folds lie close to the frontier. One is prominent near Badra north of Kut al Imara; another, known also as the Jabal Hamrin, is about 40 miles east of Ali Gharbi; others,

dotted about near the Persian boundary south of the latitude of Ali Gharbi, are almost flush with the level of the alluvial plain.

The *second chain* is the north-west continuation of folds in the neighbouring Persian foothills. One of these, half in Persia and half in Iraq, contains the oilfield of Naft Khaneh, 30 miles east of Shahraban; it supplies petrol to both Baghdad and Kermanshah. Along the same strike north of the Diyala there are two small domes between the Jabal Hamrin and Kifri, and then a long gap where the alluvium of the plain south of Kirkuk, east and west of the Little Zab, covers everything for nearly 100 miles; whether there are buried folds beneath the alluvium is not known, but the chain seems to be continued by the Jabal Hibbara and Jabal Qaiyara, which emerge west of the Tigris about 50 miles above Fat-ha. They are on almost the same strike as Naft Khaneh, and one of them yielded oil as a result of shallow drilling by the Germans during the War of 1914–1918. Jabal Shaikh Ibrahim may be an extension.

The *third chain* is parallel to this Naft Khaneh line, where the 50-mile fold of Kifri (Jabal Shakal) runs north-west of the Diyala, and, after a gap of the same length south of Kirkuk, appears again as the conspicuous elongated dome of the Jabal Qara Chauq between the Little Zab and the Tigris which cuts across its plunging end. A small group of folds extends this structure to the west, Jabal Sasan acting as a link with Jabal Sinjar.

The *fourth chain* leaves Persia near Qasr-i-Shirin and is almost continuous as far as the Tigris near Mosul. It is depressed at Chia-Surkh, south-east of the Diyala—where some of the earliest drilling for oil in Iraq was carried out with tantalizing results—but the Jabal Tasak, for 50 miles north-west of the Diyala, and the low hills of Kirkuk mark the line. These last have been drilled and form a productive field, from which oil is now pumped through pipe-lines to the Mediterranean. The surface structure is thrust-faulted, but the limestone below, whence the oil is derived, forms a large gentle unbroken arch. Beyond the Little Zab the Avana Dagh extends the chain for another 30 miles. The last visible component is a low fold just south of Mosul; the Jabal Atshan may be an extension.

The belt of country for nearly 20 miles beyond the fourth chain is only gently warped; then folds again become numerous, though as individual chains they are less easy to describe from end to end, because they are closer together and the rivers have cut deeply into them. Between the Diyala and the Little Zab there are three parallel flexures forming the broad swelling at Chemchemal, the more con-

spicuous Bazian fold (Qara Dagh, Kani Shaitan Hasan), and the more rounded Baranand Dagh. Pir-i-Mukurun forms a fourth and much more marked elevation. North-east of it from two to five others, tightly packed, can be traced in the Sulaimaniya country before they disappear under the rock slabs some 20 miles north-east of Pir-i-Mukurun.

Between the two Zabs, in continuation of this group, there are several closely packed parallel folds. Hab-es-Sultan Dagh and Sefin Dagh are two conspicuous units which act as a formidable barrier between the Erbil plain and Ruwandiz. North-east of them a large fold crosses the district near Rania, but north-west of the Sefin Dagh the strata are more robust and less pliable, so that the folds do not reach the Zab and are barely noticeable beyond. The broad plain of Erbil, south-west of this mountain group, is covered by alluvium, which is only broken by the low Demir Dagh.

West of the Great Zab four folds rise from the plain between 20 and 30 miles north-east of Mosul. The southernmost appears to be a continuation of the Demir Dagh, but the Jabal Maqlub is the most conspicuous. Farther north near Aqra the strike gradually changes from north-west to a more westerly direction. The folds are mostly broad and rather gentle, though they are deeply cut by gorges, and near Amadia the lowest rocks known in Iraq are revealed. About Dohuk they become still broader and tend to diverge, the northern folds keeping west-north-westerly and the southern trending westerly. Beyond the frontier in the northern Jazira of Syria and in southern Turkey the number and size of the folds decline, but some become conspicuous again west of the Euphrates between Palmyra and Damascus.

Beyond the more or less regular folds which have been described, but within the Iraq borderland, the topography is less regular and less clearly related to the structural foundation. Thin sheets of limestone take the place of massive beds. These wrinkle up in confused packets which erosion tends to remove quickly. Their corrugation into a great number of small folds is facilitated by the inter-layering of shales between the thin limestone beds. North-east of it, beyond an irregular line—the 'nappe front'—running from near Halabja across the basin of the Little Zab to the Turkish frontier near Nahala, slabs of disturbed rocks are packed like gigantic tiles. The mountains formed are often serrated, and unexpectedly jagged teeth stand up, whilst the landscape is affected by the variegated colours of the outcropping rocks. Red cherts, green igneous rocks, grey slates, and at

times white marbles and blue-grey limestones occur in strips, each adding their tint.

(*f*) *The Pattern of the Mountain Rivers*

Draining the mountain borderland into the Tigris are four main rivers: the Khabur, the Great Zab, the Little Zab, and the Diyala. All rise beyond the boundary in south-east Turkey or in Persia and are already large rivers when they enter Iraq. Within the Kurdish mountains they collect the drainage of each long trough between the folds and force a passage across the strike of the ranges wherever gaps or structural weaknesses permit. Thus the river pattern is well defined—valleys parallel to the strike alternating with narrow cuts or gorges through the ranges at right angles to the strike. These gorges are carved deeper than the general level of their tributaries, which thus maintain great activity near their mouths, and are now cutting gorges in their lower courses almost as deep as those of the main river. This pattern is best exemplified by the course of the Great Zab within the Iraq boundary (fig. 27), particularly near the point where the Rubar-i-Ruwandiz meets the Great Zab head on, before their combined waters cut through the Berat Dagh to the plains of Erbil.

Only a small part of the Khabur basin is in Iraq; its own lower course and that of its principal tributary, the Hazil Su, form the boundary with Turkey. The Great Zab also drains a large area in the very difficult Hakâri country beyond the Turkish border before it enters Iraq territory 13 miles north of Amadia; but near this town, from which it receives a small tributary, it turns south-east along the strike, picking up the waters of two tributary gorges, the Rubar-i-Shin and the Rukuchuk or Barasgird, before encountering the Rubar-i-Ruwandiz. The principal head-streams of the Little Zab are in Persia, where they drain a considerable area south-eastwards beyond the boundary formed by the Kandil Dagh, before breaking into Iraqi Kurdistan and doubling back north-west towards Qala Dizeh and Rania. Between these places the river finds a comparatively easy passage, but it meets some trouble from the Sulaimaniya group of ranges. The Diyala head-waters are also in Persia; this river receives no large right-bank tributaries south of the Qara Dagh, and thence flows south-west almost parallel to the Persian border and only from 10 to 20 miles distant from it, almost as far as Shahraban, where it enters the Tigris plain. Thus its left-bank drainage, which is considerable and follows the general pattern described above, is almost entirely outside Iraq.

The drainage of the rectangle between the Little Zab, the Baranand Dagh, the Diyala, and the Hamrin is rather different from that described above. The hills are lower and wider apart; sometimes the folds are buried by alluvium. Here smaller streams find separate passages through the hills north-east of Kirkuk, Tauq, Tuz Khurmatli, and Kifri, and flow south-westwards until they meet the long barrier of the Jabal Hamrin, where they are forced to flow along its north-western foot to find the single channel of the Shatt al Adhaim through the range at Abu Ghuraib, or the bed of the Diyala below Qizil Ribat (Sadiya).

REGIONAL DESCRIPTION

Lower Mesopotamia

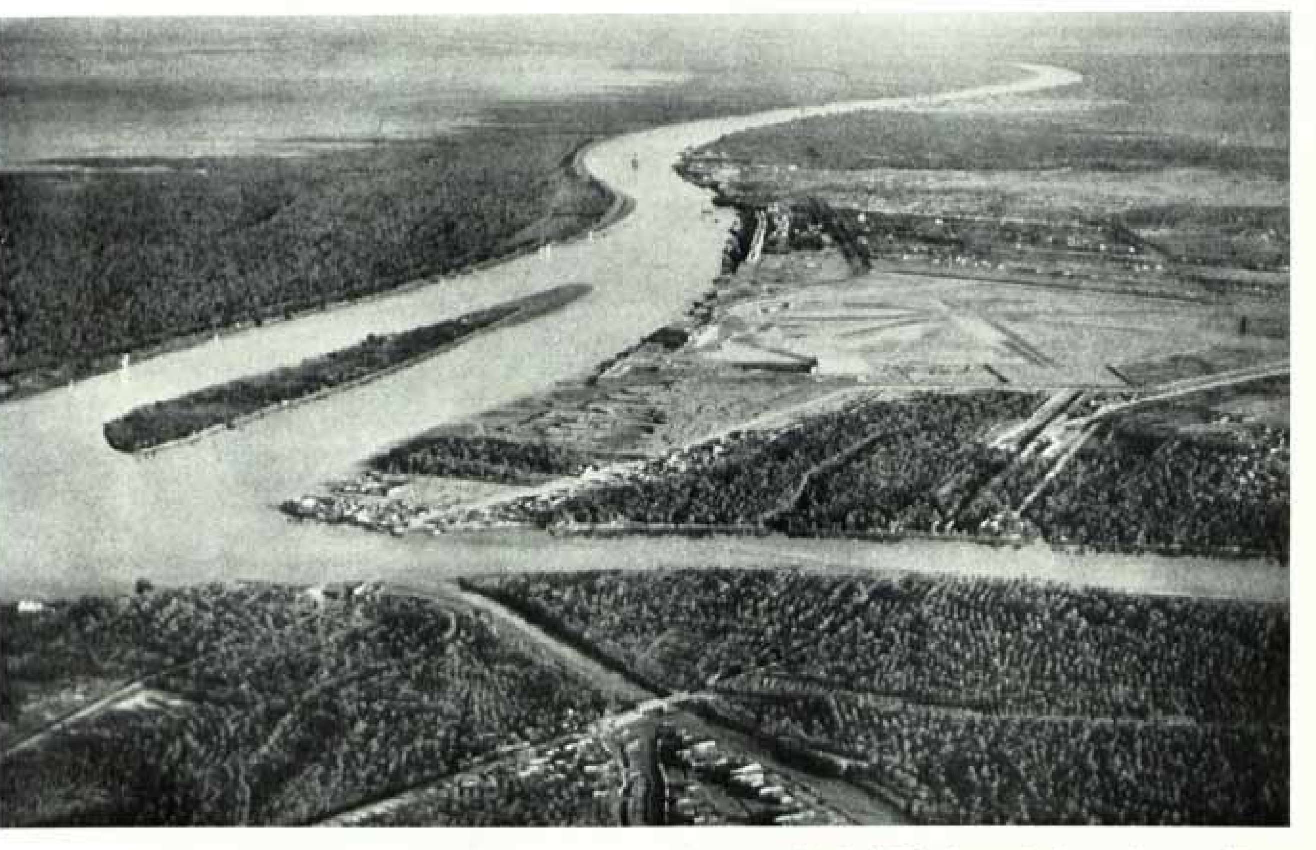
(a) *The Lower Delta Lands*

By the term the 'Lower Delta Lands' is meant the country from Nasiriya and Amara downwards to the Persian Gulf, the region covered by the 'tails' or vagrant distributaries of the Euphrates and Tigris, the deltaic muds of the Shatt al Arab, and the marshes, swamps, and low-lying alluvial deserts on either side. The rivers and the formation of these marshes have already been described, but it remains to give a short account of the principal characteristics of the marshlands and the country surrounding them (fig. 16).

Fao to Qurna

Fao is now part of the port of Basra (p. 516). It stands on the bank of the lowest and broadest reach of the Shatt al Arab on a long promontory of deltaic mud, between the Shatt and the Khor Abdulla. Low tide uncovers a vast expanse of mud on either side of the promontory. From Fao to Qurna the river banks, particularly on the Iraq side, are fringed almost continuously by date-palm plantations, which form a dense belt of trees from 1 to 2 miles wide. The belt broadens to 3 miles between Abu Khasib, about 10 miles below Basra, and the city itself, but narrows again north of Qarmat Ali where the Hammar lake drains into the Shatt al Arab.

The gardens of the palm-belt in the neighbourhood of Basra are especially well planted with tall evenly spaced palms and intersected by straight irrigation channels. Vegetables are cultivated along the



19. *The Date belt of the Shatt al Arab down the river from Qarmat Ali. Coal Island opposite Basra airport with Maqil wharves beyond*

20. *Ashar creek. Early morning*

21. *Ashar creek. Fruit bazaar*

banks of the channels, and quince, citron, and mangoes in the clearings. These gardens provided the wealth of Basra before the improvement of the port increased its prosperity. Farther south-east rice is grown in the swamps which surround the creeks, and lucerne is planted on drier ground. Both creeks and irrigation cuts form serious obstacles to movement. Some creeks have small villages with untidy walled gardens on their banks; others are lined with plantains. On the desert edge of the palm-belt there is grazing for sheep; buffaloes and cattle are found on wetter ground. From September to November the country is dotted with the black tents of beduin and reed-huts (*sarifa*) of marsh Arabs who come in to help with the harvesting of the dates.

South of the palm-belt is a broad expanse of low-lying alluvial desert, flooded in the north by the Hammar lake and drained in the south by the Khor Zubair into the Khor Abdulla, a large tidal creek opening south-eastwards into the head of the Persian Gulf. The lowest reach of the Khor Abdulla forms the boundary between Iraq and the territory of the Shaikh of Kuwait; the flats bordering it on either side are overgrown with coarse grasses and reeds and are liable to inundation. Formerly the Khor Zubair drained marshland west of Basra and the overflow in high flood of the Hammar lake, but this extensive flooding is prevented by the two embankments which carry the road and railway to Shuaiba and the higher ground west of the Hammar lake.

Beyond the Khor Zubair the ground rises to the desert edge. About 9 miles south-west of Basra are the ruins of 'old Basra', the town built by the Abbasids, which was connected across the low ground by two canals to the Shatt al Arab. Little remains of it now (p. 507), but the walled village of Zubair with its blue-tiled minaret forms a landmark in the otherwise featureless country about 2 miles beyond. Beduin come here for the market, and there is some trade across the desert to Saudi Arabia. North-west of Zubair are the airfield, R.A.F. station, fort, and railway station of Shuaiba, which, with the low ridge to the west, mark the site of the Turkish defeat in April 1915, when they attempted to retake Basra from the British (p. 275). At that time all the low ground between Shuaiba and Basra was flooded from an extension of the Hammar lake, and troops had to march in 2 or 3 feet of water or be ferried in bellums for 9 miles. There are a number of wells and water-holes in the Zubair–Shuaiba region, and they are not uncommon along the desert edge south-eastwards, but many of them are saline or brackish and undrinkable. South-westwards there is good grazing

in spring and early summer, but as the heat increases the ground becomes parched, dry, and uninhabited.

The Hammar Lake (*Hor al Hammar*) is a vast expanse of shallow water nearly 70 miles long and varying from 8 to 10 miles wide in the

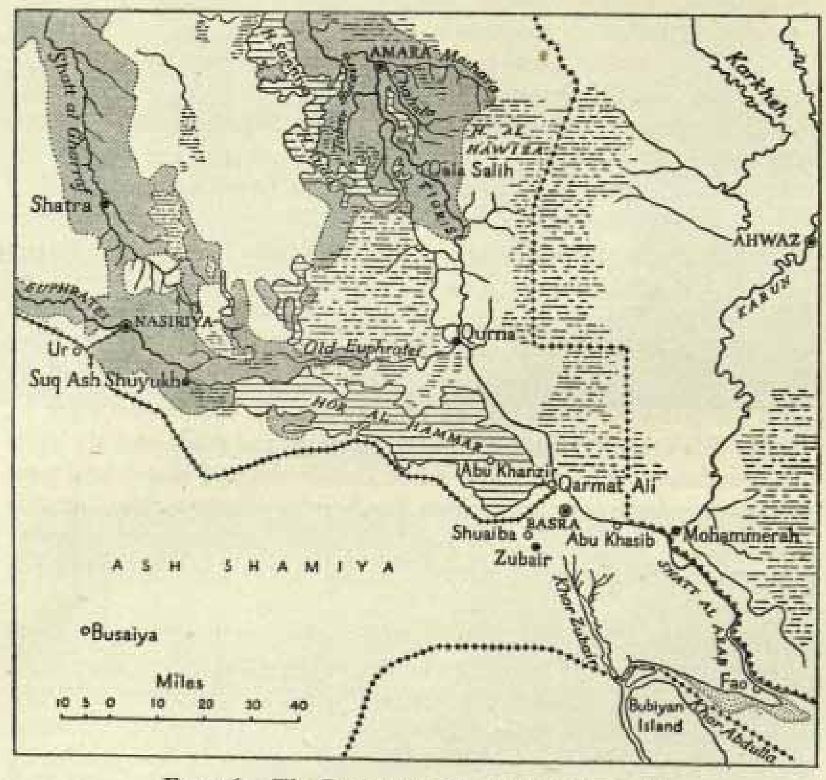


FIG. 16. *The Region of the Lower Delta Lands*

Areas generally under water are shown by continuous parallel lines; those liable to seasonal flood by broken lines. Cultivated areas, including fallow land but excluding the palm-belts along the Shatt al Arab below Qurna, are shown stippled. These remarks apply also to figs. 18, 19, 20, 21. For details of the channels see figs. 9, 10.

low-water season. It extends from about 10 miles east of Suq ash Shuyukh on the 'tail' of the Euphrates almost to Basra, and is fed by the Euphrates and by several channels which drain the marshes of the Shatt al Gharraf and those on the right bank of the Tigris below Amara. In the south the lake is now restricted by the railway embankment from Basra and almost the sole outlet is at Qarmat Ali, immediately north-west of the new Basra air-port at Maqil. The shores of the

lake are ill defined, particularly on the north; they are bordered by high reeds and extensive marsh, and the neighbouring low ground is liable to inundation with a change of wind. To the north and south there are numerous scattered villages of marsh Arabs, those on the

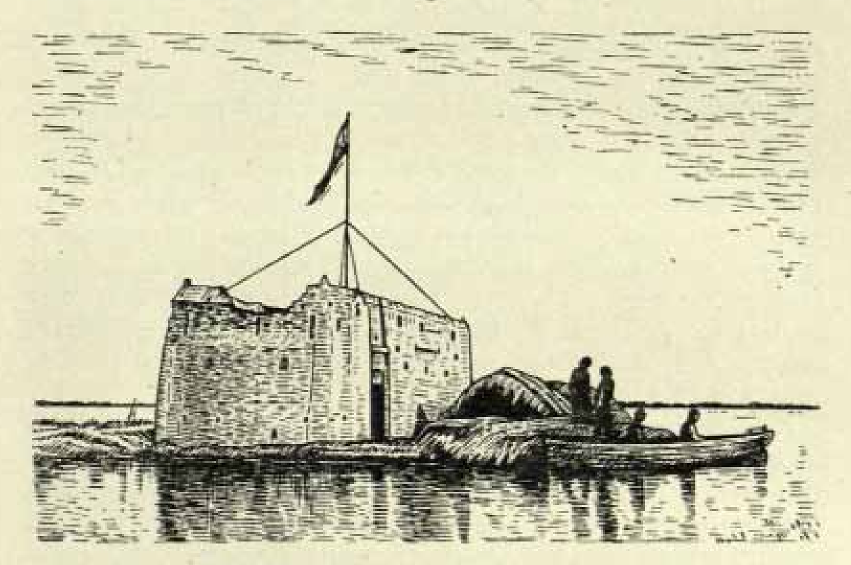


FIG. 17. *Abu Khanzir, a refuge tower in the Hammar Lake*

south being sometimes surrounded by tall palms, and on the islands themselves there are movable communities of Arabs with occasional refuge towers, such as Abu Khanzir (the 'Salimi Tower'), a prominent landmark about 12 miles north-west of Qarmat Ali (fig. 17). The depth of water is very variable at all times, and during the flood season it varies almost from hour to hour according to the wind. The marsh Arabs are accustomed to move their villages of reed-huts to higher ground as the water rises (p. 347). Navigation even by small motor-boats is often difficult, because under-water vegetation clogs the propellers, and the best means of movement is by *bellum* or *mashuf* drawing not more than 8 inches of water. Sudden storms caused by strong winds are not infrequent; the lake then becomes a choppy sea, and there is considerable danger because of hidden mud-banks.

The southern side of the lake is better defined than the northern. The ground here gradually slopes up to a height of about 200 feet in 25 or 30 miles, the bare open desert being known as Ash Shamiya.

Marshlands between Nasiriya and Amara. The old channel of the Euphrates which entered the Tigris at Qurna is fairly well defined in the low-water season. But at flood time most of the country on either side is submerged and almost the whole triangle of country between Nasiriya, Amara, and Qarmat Ali may be under shallow water, traversed by uncharted channels, the position of which is known only to the marsh Arabs. Much of the more permanent marsh is overgrown with reeds, and the skilled boatman alone may find the channel of deeper water by noting the change in density of the reed-beds. Some of these reeds, the giant *mardi*, grow to a height of 25 feet; others, shorter and stout but pliable, are used by the Arabs for their huts. It is easy to become lost in these marshes; the solitude is intense, there are few landmarks, and a mashuf leaves no track through the reeds. There are, however, occasional clearings with settlements of marsh Arabs, and some rather more permanent hamlets and watch-towers on higher ground surrounded by rice-fields and a few palms.

Northwards the marshy area becomes less continuous except for a long belt of permanent water bordering the Tigris. To the west of this belt considerable areas dry up in summer. Then the ground becomes sun-baked and cracked. Little is known of this desert country beyond what is shown on the quarter-inch map. Most of it is barren desert with traces of ancient settlements and abandoned canals, though there is grazing after the winter rains. Between it and the Tigris are the perennial Haur Auda and Haur Umm al Baqr, a continuous expanse of water and marsh fed by the Nahrs Butaira and Tabar (p. 52) and in the flood season by the overflow from the great Haur Sanniya on the north. During this period this marsh may be 10 miles wide or more, and it takes some 6 hours to cross it by mashuf.

A narrow strip of harder and higher ground borders the Tigris on the west and takes the motor road, but from Qurna to within about 8 miles of Qala Salih there is barely room for the road at many places. A few sandhills stand up from the marshes. This was the scene of General Townshend's battle for Amara on 31 May 1915 when his infantry attacked across the flooded country in bellums (p. 275). From Qala Salih northwards to Amara the water is better controlled and there are numerous small reed-built hamlets which are surrounded by rich rice cultivation, irrigated by branch distributaries of the Butaira and Tabar canals.

The country east of the Tigris is also mostly under water. Here

the Haur al Hawiza is fed by the Tigris through the Nahrs Mashara, Chahala, and Michariya (pp. 52–3) and by the Karkheh distributaries east of the Persian boundary. Numerous Arab hamlets line the channels and much rice is grown. Most of the Haur al Hawiza is unsurveyed. As on the right bank, there is a narrow band of higher ground near the river, and Qala Salih can be reached from Amara in the dry season. From Qala Salih to Qurna, however, the flood water comes close to the river, and even in the summer the number of creeks to be crossed prevents communication by land.

(*b*) *The Upper Delta Lands*

The region of the 'Upper Delta Lands' is here taken to include the country between the Euphrates below Ramadi and the Tigris below Baghdad, as far down the rivers as Nasiriya and Amara. It includes also the land on the left bank of the Tigris to the foot of the Jabal Hamrin from the Fat-ha gorge southwards, and between the Tigris and the Persian border at the foot of the Pusht-i-Kuh. It thus extends beyond the delta in the strict geographical sense, but it is more convenient to include all the land up to the outer foothills for purposes of description.

The Country north of the Tigris between Amara and Kut al Imara (fig. 18)

The Tigris between Amara and Kut approaches closest to the hills at Ali Gharbi, where it is only 17 miles from the international boundary along the edge of the plain. Farther south-east the boundary makes a slight embayment to include the sandstone foothills of Band-i-Buzurgan, half the Persian Jabal Hamrin, and Jabal Fauqi. The chief characteristic of this plain is the number of shallow stream-beds which emerge from ravines across the border but soon peter out in the sun-baked sand and alluvium. Most of these rise on the outermost slopes; but four drain larger areas behind the outer hills of the Pusht-i-Kuh. These are, from north to south, the Galal Badra (known as the Ab-i-Kanjam Cham beyond the frontier), the Galal Chankula (the 'Wadi' of the campaign for Kut in January 1916, and the Ab-i-Tima of the Pusht-i-Kuh), the Ab-i-Maima or Tib river (which has a long course in the Pusht-i-Kuh, and breaks out of the hills between the Kuh-i-Gutba and Persian Jabal Hamrin), and the Kharkhara (not to be confused with the Karkheh, and variously known beyond the border as the Dawairij, Ab-i-Dislan, Chikhan, or Ab-i-Danan).

All these four, unlike the lesser streams, are perennial as they enter Iraq, but only the Chankula or 'Wadi' reaches the Tigris. The Galal Badra breaks up into a number of channels, most of which are used to supply water and irrigation to villages and settlements; of these Badra

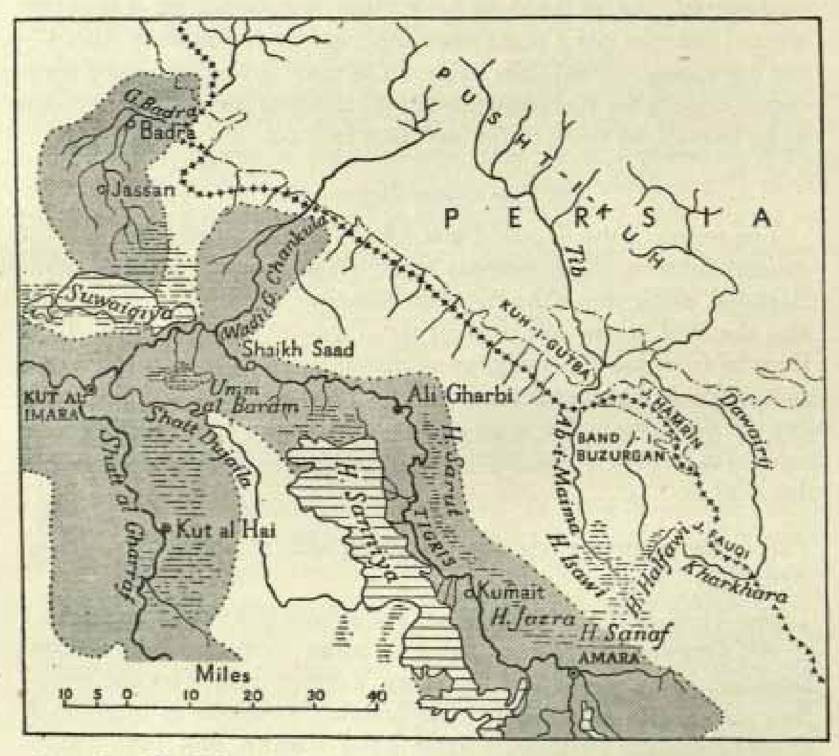


FIG. 18. *The Delta lands between Amara and Kut al Imara. The line of the foothills is shown approximately by the 600-foot contour (line and dot); for the key to other symbols see fig. 16*

and Jassan are the largest. Their overflow drains into the belt of low ground north of the Tigris and forms the Suwaiqiya lake (Haur Suwaiqiya), a shallow expanse of water of variable salinity and with muddy indefinite boundaries, which formed an important feature protecting the left flank of the Turkish position from Umm al Hanna to Sannaiyat in the campaign for Kut in 1916 (p. 280).

The Chankula keeps mostly to a single channel, but some water is taken from it into distributary channels and cultivation here has increased. It only carries water to the Tigris in the rainy season. The

Ab-i-Maima and the Kharkhara distribute their waters into the Haur Isawi and Haur Halfawi, which combine to form intermittent marsh some 20 miles east of Kumait. This marsh in the flood season extends almost to Amara, where it is known as the Haur Sanaf.

Between the Chankula and Ali Gharbi there is no marsh of consequence, but the low ground east of the Tigris from Ali Gharbi to Amara is liable to inundation from the river. Known as the Haur Sarut in the north and the Haur Jazra north of Amara, it may link up in the south with the Haur Sanaf, but there is always a strip of higher ground between this shallow marsh and the Tigris, which permits communication by land between Amara and Kut by the left bank.

Many of the stream-beds across the plain are marked by bushes from 3 to 4 feet high. Elsewhere there are low scattered bushes and some grass, but much of the ground is barren and sandy. There are few landmarks, except along the Tigris banks.

The Country on the Right Bank of the Tigris from Amara to Kut (figs. 9, 18)

Some 8 miles by river below Kut the course of the ancient Tigris (Shatt Dujaila) leaves the present course near the Arab fort of Maqasis and winds into the desert first south-eastwards and then south. It forms a depression in some places from 10 to 15 feet deep and its bed, though generally dry, is often bush-covered. Rain collects in pools and there are occasional water-holes, but the depression is now to be used to carry water for irrigation (p. 438), and the country through which it passes is likely to become more productive. On both sides of it there are traces of ancient canals and settlements which have not yet been investigated, and across its first great loop are the high banks of the ancient Sinn canal, 35 feet high (p. 50).

Between the Shatt Dujaila and the Tigris from Ali Gharbi to Amara there is a wide expanse of marsh, the Haur Sanniya, fed by a number of irrigation channels leading from the Tigris. The limits vary greatly with the season, but it has not been surveyed in detail. Maps show it as being open water from 2 to 5 feet deep in July 1915 and in April 1919, but it is believed to be less extensive now than then. Another small marsh, the Umm al Baram, is fed by channels between Maqasis and Shaikh Saad. Few if any of the channels have perennial water in them, but the heads of some are left permanently open to take water from the Tigris when it rises. Even in summer, when the beds are dry, water is near the surface.

Communication along the right bank of the Tigris between river

and marsh is easy except after rain, when the alluvium becomes rapidly churned to mud; but large areas not shown as marsh on the maps may easily be inundated in the flood season if the river bunds are breached, either accidentally or deliberately. Movement is then extremely difficult and some of the channels have to be bridged.

The Shatt al Gharraf or Shatt al Hai (figs. 9, 20)

The Shatt al Gharraf draws water from the right bank of the Tigris opposite Kut al Imara, and after flowing south for about 100 miles tails out into marshes near Nasiriya. It was formerly the Abbasid course of the Tigris (p. 50). Until the completion of the Kut barrage in 1940 the intake of water from the Tigris was entirely uncontrolled, and during the months from August to October the bed was either dry or only contained disconnected pools of water. The Shatt al Gharraf has, however, always been a watercourse of importance during most of the year, and its banks and those of its distributaries have always been fairly well populated. This is particularly true of the country south of Qala Sikar, from which place southwards a system of controlled distributaries take water from the river to irrigate fields on either side (p. 438). These distributaries disperse into marshy ground generally from 5 to 15 miles from the Shatt al Gharraf, and some of these marshes remain perennial with open water throughout the year, particularly those on the east. Most of them, however, dry up in summer, when their surface becomes baked hard and cracked by the hot sun. Kut al Hai in the north, and Qala Sikar, Karradi, and Shatra towards the south, are the chief settlements. The region is divided between the Bani Rabia in the north and the Muntafiq in the south. The latter in particular have held a reputation for turbulence and treachery, both among themselves and in their dealings with government authority.

The Country north of the Tigris between Kut al Imara and the Diyala (fig. 19)

This area is divisible into five parts: (1) the belt of country along the Persian boundary and foothills, watered by streams, some of them perennial, between the Galal Badra and the Ab-i-Naft; (2) the extensive area of low ground liable to inundation in winter from the surplus waters of these hill streams; (3) the narrow riverain fringe of the Tigris; (4) the desert, once fertile and irrigated by the great Nahrwan canal and its distributaries; and (5) the zone of comparatively

prosperous settlements, watered by the Ruz and other left-bank canals drawing water from the Diyala.

The principal streams watering the first area from the hills are the Galal Tursaq, the Galal ad Dara (or Talkh Ab), the Gangir, and the



FIG. 19. *The country north of the Tigris between Kut al Imara and the Diyala. For the key to symbols, see under fig. 16*

Ab-i-Naft. All these have fair-sized basins beyond the outer ranges and are perennial, often with steep banks, as they enter the plains, where most of them break up into distributaries, natural or artificial. The water is generally good at first, but all the streams become progressively more brackish as the distance from the hills increases, so that encampments are confined to a belt less than 15 miles wide from the foothills. Mandali (p. 544) is a small town surrounded by palms, the centre of a group of villages. There is a marked sweet-water spring-line which makes communication easy between Badra and Mandali.

Some trouble has occurred in the past at Mandali concerning water rights and distribution across the Persian border, which is only 5 miles distant.

Southwards is a broad belt of waste ground liable to inundation after winter rain in the hills. This region is known generally as the Haur ash Shubaicha, but it has several local names where lower ground is flooded every winter. The marsh is never deep, and its extent varies with the wind, but after very heavy rain it is occasionally continuous with the Suwaiqiya marsh north of Kut. The Shubaicha marshes dry up in summer, leaving a sun-baked and sun-cracked salty surface which is passable almost anywhere by cars. One traveller who crossed this trackless country from Balad Ruz to Aziziya by Ford car in July 1917 records shade temperatures of 126° F.

There is little to add to what has already been said concerning the riverain and Nahrwan districts (pp. 48–9). The number of settlements along the river bank has increased during the last twenty years, but the cultivated fringe is narrow and discontinuous because of fallow land, and irrigation channels, supplied by lifts and mechanical pumps, are rarely more than 5 miles long. A few spill into small unimportant marshes, but the road from Kut to Baghdad cuts across each loop of the river without difficulty. Beyond this riverain fringe is the once fertile region watered by the Nahrwan canal, which widens north-westwards to some 30 miles (p. 433), and it is across this section that the new railway from Kut to Baquba has been alined.[1]

Immediately east of the Diyala is a district very different from that already described. This is well watered by five canals which leave the left bank of the Diyala near the point where it breaks through the Jabal Hamrin: the Ruz, the Haruniya, the Shahraban, the Mahrut, and the Khurasan, the two last having the same head-works on the Diyala but dividing almost at once. The Ruz canal is the easternmost and irrigates a broad belt of land, some 56,000 acres in extent about 20–25 miles distant from the Diyala; the large village of Balad Ruz is the chief centre of this belt. The Haruniya and Shahraban are shorter, but the Mahrut and Khurasan are both important, irrigating areas of 66,000 and 71,000 acres respectively. Considerable development of all this country has taken place since the Irrigation Department built the Diyala weir and canal regulators for the better control of Diyala water (p. 439).

[1] This railway is not shown on fig. 19 as the exact alinement is not yet published. The approximate line is shown on the Communications map.

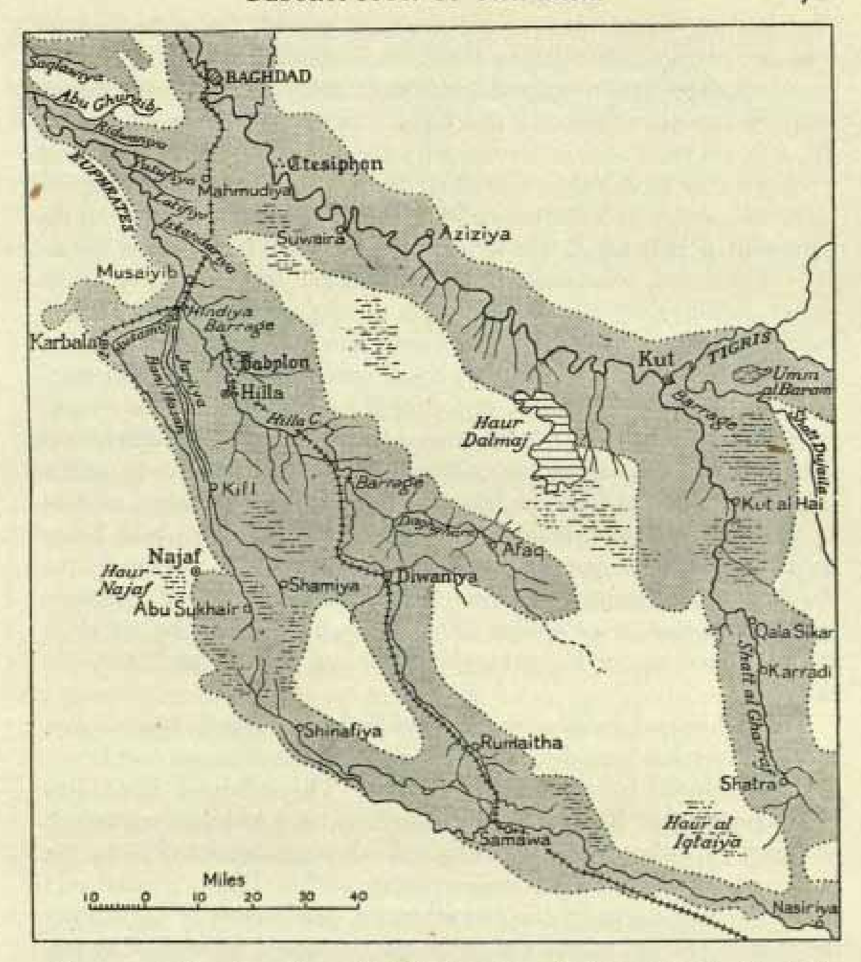


FIG. 20. *The region between the Tigris and the Euphrates from the Shatt al Gharraf to Baghdad. For the key to symbols, see fig. 16*

The Region between the Tigris and the Euphrates from the Shatt al Gharraf to Baghdad (figs. 8, 9, 20)

This region was proverbial in antiquity for its fertility and productivity. The earliest Sumerian cities, each with its own local irrigation, were in the south; they were succeeded later in the north by Babylon, which introduced a system of controlled irrigation from the Euphrates. As the capital moved from Babylon to Seleucia and Ctesiphon and thence to Baghdad, the centre of productivity shifted gradually higher

up the two rivers. During the Abbasid period, from the seventh century to the sixteenth, almost the whole southern half of the region was inundated and remained under the waters of the Great Swamp, only to be uncovered after the Tigris changed to its present course (p. 50). As the waters of the swamp were drained, strips of land were reclaimed by Arab cultivators along the lower Gharraf and along the distributaries of the Euphrates, but lack of co-ordination during the Ottoman period led to the silting of the great canals in the north. The Tigris, too, constantly broke its banks and laid great areas under water during the flood season, so that during these centuries a broad belt of country between the two rivers went out of cultivation.

At the outbreak of war in 1914 there were thus three distinct parts to the region: the cultivated region of the Euphrates and its uncontrolled distributaries, with constant quarrels regarding property and water rights; the narrow riverain strip along the right banks of the Tigris and Shatt al Gharraf, the latter only irrigable for a few months of the year and only a small proportion of the cultivable land being actually cultivated; and the broad waste in the middle, marked by the derelict embankments of ancient canals and by the *tels* of forgotten settlements, and covered after almost every flood season by marsh in the north and centre, but throughout the year desolate and barren in the south.

These three subdivisions marked out by history remain true to-day, though much has been done during the past twenty-five years to lessen the evils caused by centuries of neglect. The left-bank Euphrates canals from below Ramadi to Musaiyib have been widened, extended, and partly regulated, and the Hilla and other canals controlled by the Hindiya barrage have been improved (pp. 36 ff.). The cultivated area is encroaching again on the central waste, particularly in the north; the Tigris embankments are much better looked after than in the past, and mechanical pumps have broadened the riverain belt of Tigris cultivation. In the south a considerable area east of Diwaniya is commanded by the Daghghara barrage and the acreage under cultivation has increased. Movement near the Tigris and Euphrates banks is restricted by the irrigation channels, date-gardens, and cultivation, though there is still a high proportion of fallow land every year, because of insufficient labour for intensive cultivation.

There are no recently published maps showing to what extent the marshlands of the central belt have been reclaimed, and no soil survey to indicate how much is reclaimable. The Haur Dalmaj seems to be the only remaining perennial marsh of any size; it is fed by channels

into which water is lifted from the Tigris between Aziziya and Kut. Its characteristics appear to be the same as those already described and its boundaries vary with the season and the wind. Other marshes farther north are less permanent, and most of them dry up completely during the summer months, leaving a hard and sometimes salt-encrusted surface. There are several tracts of sand which are never flooded, and occasional sandhills, but well-marked tracks traverse this central belt from one river to the other and these are almost always passable for light motor traffic, except after rain.

The Region on the Left Bank of the Tigris between the Diyala and the Fat-ha gorge (fig. 21)

This region is bounded on the north-east by the Jabal Hamrin, which is pierced near the middle by the Shatt al Adhaim, the only perennial river besides the Tigris and the Diyala. Beyond the Jabal Hamrin are the Assyrian foothills and plains, watered by the Little Zab and tributaries of the Adhaim and Diyala. Very little water passes down the Adhaim across the plains for eight months of the year, but its liability to violent spates during the winter rains accounts for its wide flood-bed, cut from 25 to 40 feet deep in the surrounding plain. The Adhaim after leaving the Jabal Hamrin seems never to have been used for extensive cultivation, even during the Abbasid period, though there are ancient works near its passage through the hills which were built to hold up water for irrigation to the north (p. 89).

The greater part of this region is therefore desert, and the only division that can be made is according to the utilization of the land. There is a broad belt of cultivated ground irrigated by the Khalis canal drawing water from the Diyala, and continuing down between the Tigris and the Diyala to their junction below Baghdad. Above the mouth of the Adhaim the low riverain fringe of the Tigris is irrigated from that river. The rest is waste and desert.

The ground commanded by the Khalis canal and its subsidiaries is closely settled and extensively cultivated. Compared with the cultivation of other parts of Iraq the land problems have been better solved. But no part of this belt is more than about 10 miles from the Diyala or the Tigris, though the area irrigated by the Khalis in winter is about 93,000 acres.

The desert slopes up very gently northwards to the Jabal Hamrin, the foot of which is about 200 feet above sea-level near the Diyala and about 500 feet in the north. The Jabal Hamrin presents a foothill

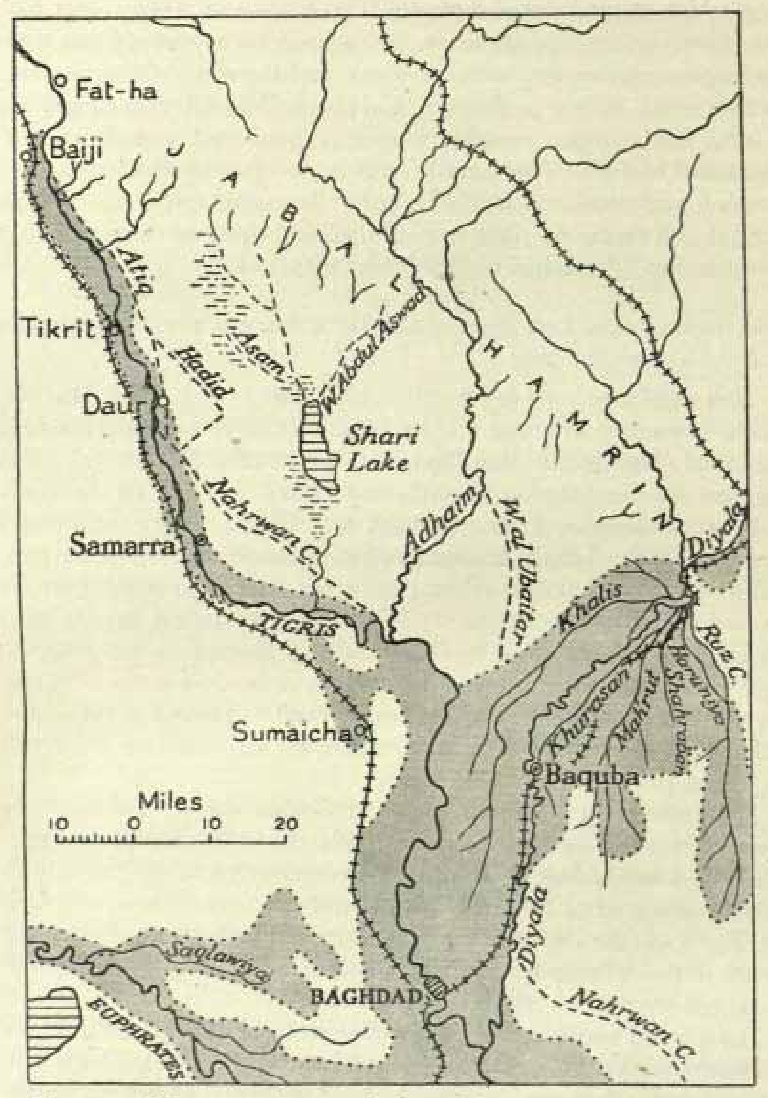


FIG. 21. *The country between the lower Diyala and the Fat-ha gorge. For the key to symbols see fig. 16*

zone about 4 miles wide where the gradient increases and which is scored by numerous ravines. These carry water after rain for short distances into the plain, but only two or three of them reach the Tigris in the north, where the distance is less than 10 miles. A few are fed

intermittently by springs in the hills, but the water from these is invariably brackish. The crest rises steeply some 300 feet above the foothills (p. 82).

There are few landmarks or other features in the desert, and still fewer permanent settlements. Between the Adhaim and the irrigated belt of the Diyala, the Wadi al Ubaitar, an old course of the Shatt al Adhaim, forms a depression with 10-foot banks in places. West of the Adhaim is a region with low sandhills—some of them 100 feet high —and beyond them an expanse of shallow brackish water, the Shari Lake, which is fed by the Wadi Abdul Aswad and the Wadi Asam. These are reported to be perennial, but they cannot carry much water since the lake mostly dries up during the summer. Between the Tigris opposite Tikrit and the Jabal Hamrin the desert has a hard smooth surface and is easily passable in all directions. Gypsum is a common component of the soil. There are a number of wells, but all contain brackish water or are dry.

Near the Tigris the most prominent feature is the ancient Nahrwan canal with its banks still standing from 15 to 30 feet above the plain. Between it and the river are the ruins of Abbasid Samarra (photo. 121). To the north of its Sassanid head below Daur there are the embankments of other ancient canals, the Nahr al Atiq and the Nahr Hadid, the former of which drew water from the Tigris almost opposite Baiji. None of these have carried water for many centuries.

Upper Mesopotamia

The boundary between Upper and Lower Mesopotamia for purposes of description can only be arbitrary. It has seemed convenient to describe the country on the left bank of the Tigris as far north as the Jabal Hamrin with Lower Mesopotamia. It is equally convenient to include in Upper Mesopotamia the whole plateau between the Tigris and Euphrates as far south as the low ground near Baghdad, although this takes in the delta on the right bank of the Tigris between Qadisiya and Baghdad. The difficulty partly arises from the use of the terms Mesopotamia, Jazira, and Iraq at different periods of history.[1] Upper Mesopotamia is divided by the Tigris into the Jazira of Iraq and the Assyrian plains and foothills.

(a) *The Jazira of Iraq* (fig. 22)

The Jazira of Iraq is the south-eastern part of the great region between the Tigris and Euphrates south of the southern foothill

[1] Introduction, pp. 4, 5.

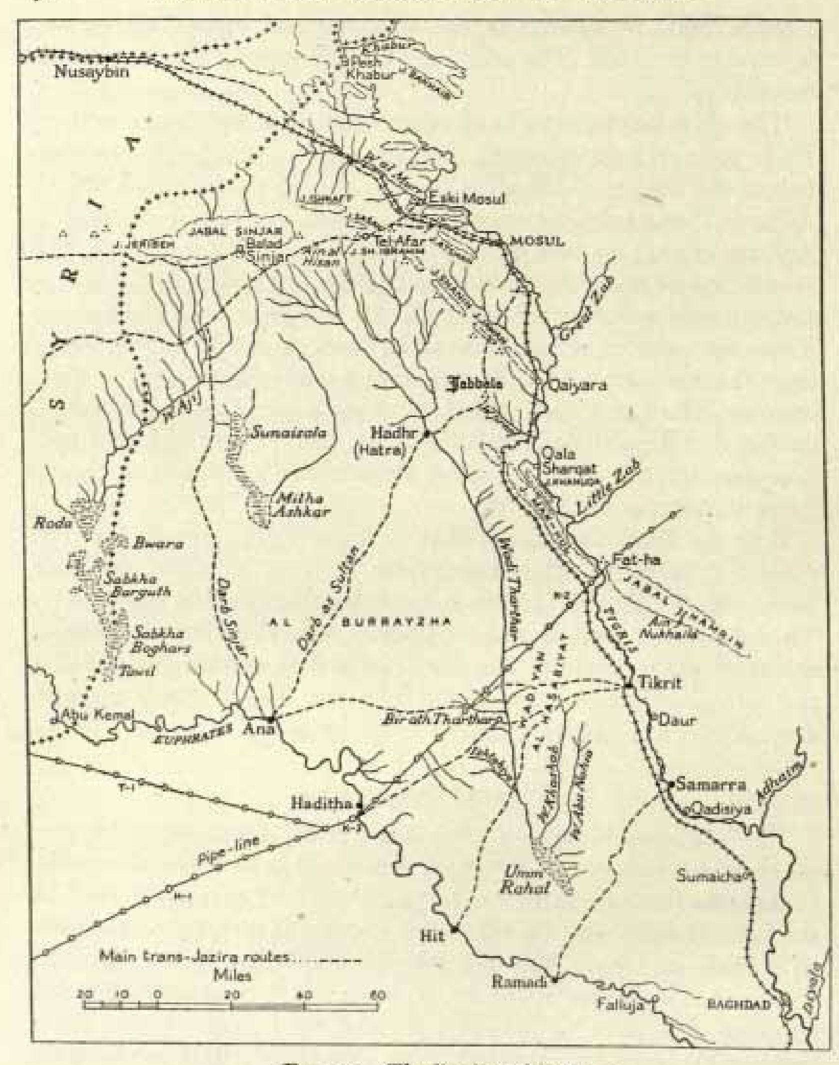


FIG. 22. *The Jazira of Iraq*

ranges of the Turkish mountains, all of which is embraced by the Arabic word *Jazira*, 'the island'. It stretches southward from the Syrian political boundary at Pesh Khabur to the neighbourhood of Baghdad, a distance of over 250 miles. Almost wholly desert, except along the riverain strips and in the north, it forms a low plateau sloping gently south-eastwards from 1,500 feet at the foot of the Jabal

Sinjar in the north and from 800 feet near Abu Kemal in the west to about 250 feet above sea-level west of Baghdad. Thence it falls fairly abruptly to less than 150 feet along the head of the delta lowland in the neighbourhood of the Saqlawiya canal.

Certain features break the uniformity of the Jazira. In the north there are occasional low ranges of hills formed by the folding of the strata, the most prominent being the Jabal Sinjar west of Mosul and the Jabal Mak-hul which extends the Jabal Hamrin to the north-west. From these and other hills the rainfall is collected in streams, a few of them perennial, which either find their way into the Tigris or collect to form the Wadi Tharthar, a remarkable depression which traverses the length of the Jazira of Iraq and finally empties into the salt depression of Umm Rahal in the south. The riverain belts on either side of the Jazira are rarely more than 3 or 4 miles wide, and often less, except between Samarra and Baghdad, where, as already mentioned, the Abbasid courses of the Tigris and Dujail canal were considerably west of the present course (p. 46).

The Riverain Country between Samarra and Baghdad

A general outline of this district has been given with the description of the course of the Tigris. Towards its western edge the banks of the ancient Dujail canal and of its distributaries rise above the plain (fig. 13). The railway makes use of the canal banks and is thus raised above the level of possible floods from the Tigris. Most of the country between the railway and river is cultivated (fig. 21). Sumaicha, the only large village at any considerable distance from the river, lies among palm-trees and gardens. It was once watered by the Dujail canal west of the old course of the Tigris, but is now dependent on the water of numerous wells. The region here is identified with the fertile district of Maskin in Abbasid times.

The Wadi Tharthar and the Southern Jazira

The Wadi Tharthar rises in the eastern half of the Jabal Sinjar west of Mosul from a number of springs, the chief of which appears to be the Ain al Hisan (Ghassan) about 20 miles east of Balad Sinjar. Other springs near Balad Sinjar also contribute some water, to which is added the run-off from the Jabal Sinjar and Jabal Shaikh Ibrahim during the winter. The streams unite before passing within 2 miles of the ruins of Parthian Hatra (Hadhr). The principal wadi north of Hatra is perennial though slightly saline, but there are several wells of sweet water in its neighbourhood. Much grass grows in spring

and affords good grazing for the camels and sheep of nomads, mostly Shammar Jarba and Dulaim (p. 363), but the depression is too deep for the water to be used for cultivation. Near Hadhr the Tharthar is 25 to 30 feet wide and the water may be between 5 and 6 feet deep in winter or after rain in spring. For some distance to the south the wadi remains perennial, but it becomes increasingly saline and sluggish, flowing in a wide bed cut deeply into the plateau. A few watercourses add some rainfall from the north-west end of the Jabal Mak-hul, and there are a number of wadis (*shaiban*) which drain the plateau between the Jabal Mak-hul and Tikrit into the Tharthar. The descent to these wadis, as to the Tharthar, is often steep and may be as much as 60 feet. The main depression, 35 miles west of Tikrit, is from 4 to 8 miles wide, with a thick growth of grass in spring; it is marshy in May. At this period the Tharthar water is brackish, and all the wells, generally little more than shallow holes in the ground, contain a yellow, brackish, evil-smelling water. The region to the east of the Tharthar is known as Abu Hasa or Wadiyan al Hasabiyat. Two *shaiban*, the Wadi Khashab and the Wadi Abu Nahia,[1] broader and deeper than the rest, break the surface of the plateau west of Samarra and enter the Umm Rahal depression independently of the Tharthar.

Musil, who crossed the Tharthar in 1912, at about the latitude of Ana and Daur, described the descent from the east as difficult, the gradients to the floor of the depression as steep, and the escarpment at Bir ath Tharthar as having layers of rock salt. Since then the escarpments have been eased at a few places and made passable for cars. The broad upland to the west is also broken by *shaiban*, some like the Ishtahiya, draining to the Tharthar, some to the Euphrates, while others seem to reach neither. In the soil there is much gypsum which comes to the surface as small hollow knolls and domes (*tablat*), the result of solution and weathering. A layer of cemented earth and gravel often covers the domes, and in some of the larger ones there is room for twenty persons. Hollows of various sizes are formed between these bubble-like features, wherever the ground is composed of rock salt and crystallized gypsum.

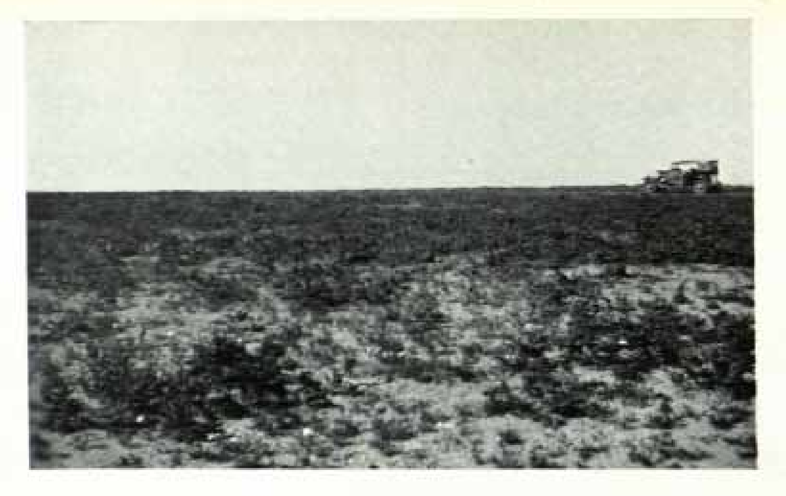
Between the Wadi Tharthar and the Euphrates the wells in the upland, which as far west as the Khabur in Syria appears to be known as Al Burrayzha (from a word meaning 'rock salt'), are all to

[1] Various travellers give different names to the *shaiban*. Possibly these have different names in different sections of their courses; possibly they are known by different names to people from different tribes or towns on the Tigris and Euphrates. Maps are compiled from travellers' traverses and cannot be relied upon for exactness of detail.



22. *The northern flank of the Jabal Sinjar from the air*

23. *Vertical air-photograph of Balad Sinjar and southern slopes of the Jabal Sinjar*



24. *Steppe west of Mosul, alt. 1,400 feet. Vegetation consists of Phlomis sp., Centaurea Behen, Poa bulbosa, Ranunculus asiaticus, etc.*

25. *The palace of Hatra from the air*

some extent brackish, though drinkable by the Dulaim and Shammar nomads who graze their sheep and camels in this district. A few main caravan tracks cross the country: from Samarra to Ramadi, from Tikrit to Hit and to Ana, from Mosul through Hadhr to Ana (*Darb as Sultan*), and from Sinjar to Ana (*Darb Sinjar*). The pipe-line and motor-track from the Kirkuk oilfields also cross the Jazira from below the Fat-ha gorge to the Euphrates 3 miles below Haditha.

Umm Rahal, into which the Wadi Tharthar drains, is, according to Musil, an elliptical depression about 20 miles from north to south and about 150 feet below sea-level, enclosed by double or treble escarpments broken by numerous wadis. All the slopes overlooking the depression are composed of gypsum or rock salt and supply the lake with salt, which is deposited on the bed and collected by people of the settlements along both Tigris and Euphrates. Large tree-like bushes (*raza*) with long flexible branches and needle-shaped leaves grow at the base of the depression. The lake apparently dries up during the summer months, and is quite dry by November.

The Tharthar no longer forms a useful line of communication from south to north, even for camel caravans. But there are numerous references in history to it having served this purpose in ancient times, and in early Arab times there were halting-places or khans (*baniya*) about every 20 miles. The road led from the Maskin district of the Dujail canal through Hatra to Nisibis (Nusaybin). Arab geographers were, however, incorrect in attributing the source of the Tharthar to the Hermas river of Nisibis and in writing that it ever had an outlet in either the Euphrates or Tigris.[1]

The Jazira North of the Jabal Mak-hul

The Jabal Mak-hul and Jabal Khanuqa rise steeply from the Tigris and form narrow parallel ridges with characteristics very similar to those of the Jabal Hamrin (p. 82). Both are rugged ranges, scored deeply by ravines, and except for goat-tracks are crossed by no regular paths except towards the lower north-western end. Qala Sharqat, the ancient Ashur (p. 213), is on the Tigris near the northern end of the Jabal Khanuqa. The difficulty of passing the Tigris gorge at Fat-ha and the natural defences of the Hamrin and Mak-hul rendered it secure from attack from the south. These features explain the deflection of the ancient caravan route north-

[1] Musil suggests that, after the Captivity of the Jews, the returning exiles were collected by Ezra in the neighbourhood of Sumaicha and led back by him by the Tharthar route (Ezra vii. 9).

westwards along the southern foot of the Jabal Mak-hul to the Wadi Tharthar, a deflection that led to the founding of the desert caravan city of Hatra in Parthian times. In its neighbourhood there have always been water and plentiful grazing for camels, and in ancient times the caravan trade needed protection from desert raids. It was the dues levied on such traffic that brought wealth to Hatra on the trade-route between Nisibis and the Tigris (p. 234).

From Qala Sharqat to Qaiyara the plain west of the Tigris is open, though cut deeply by the Wadi Jirnaf and its tributaries, especially near the Tigris. North of Qaiyara is an important line of low hills stretching north-westwards to Tel Afar, where a break affords easy communication between Mosul and Balad Sinjar. Between this line of low hills—the Jabal Qaiyara (or J. Najma), J. Jawan, J. Umm al Shanin, and J. Shaikh Ibrahim, none of which rise more than 500–700 feet above the plain—and the Tigris at Eski Mosul, the surface of the plain is much broken by ravines and low limestone ridges. The easiest ground is now, as it was in ancient times, along the open plain by the south-west foot of this line of hills, since farther west the desert again becomes cut up by the tributaries of the Tharthar. West of Tel Afar the hills change direction to due west and form the Jabal Sasan (1,962 ft.) and Jabal Sinjar (photos. 22, 23). This range rises to 4,781 feet at the highest summit, and is continued into the Syrian Jazira by the lower Jebel Jeribeh. Much of it is inhabited by Yezidis (p. 330), and there is a fairly broad belt of rain-fed cultivation on the plain south of it. Balad Sinjar, the chief town, lies close under the southern flank; it marks the site of the walled Roman fortress of Singara (p. 236), and the Roman defended frontier (*Limes*) passed along the southern foot of the Jabal Sinjar through Singara to Zagurae (near Tel Afar) and the Tigris at Eski Mosul near the junction of the perennial Wadi al Murr. It was along the general direction of this stream that the ancient caravan route ran to Nisibis, to be followed later by the Turkish military road and to-day by the modern standard-gauge railway that links Baghdad with Aleppo and the Bosporus opposite Istanbul. Eski Mosul ('Old Mosul') marks the site of an important walled town in the past, subsequent to Nineveh but before the building of Sassanid Mosul. The whole Sinjar region formed a defensive zone with a close network of roads and forts (*castella*), designed to prevent Parthian and Sassanid irruptions into Roman Syria through the well-watered region of the northern Jazira and Turkish foothills. Hatra, though close to the Roman frontier, withstood successfully several assaults and sieges by Romans

and Sassanids in the second and third centuries A.D., until it was captured probably by Sapor I about A.D. 245 and destroyed. Nevertheless it played a not insignificant part in the final campaign in October 1918, which once more illustrated the geographical advantage of its site. As the British closed on the Turkish position astride the Fat-ha gorge and turned the eastern flank through the Ain Nukhaila pass over the Jabal Hamrin (p. 285), a brigade of light armoured cars took station among the ruins, and using Hatra as a base swept across the plain north-west of Qala Sharqat to raid the Turkish communications with the north.

The Desert by the Syrian Boundary

The drainage of the western part of the Jabal Sinjar and of the Jebel Jeribeh is collected by a number of wadis which empty into a depression known as the Wadi Ajij. In many respects it resembles the Wadi Tharthar, but it crosses the Syrian boundary about latitude 35° 38′, and its terminal depression, the saline lake Roda, is in Syrian territory. South of the Roda there are other saline depressions, the *sabkhas* Bwara, Barguth, and Boghars, the last-named reaching to within 14 miles of the Euphrates at Abu Kemal and almost wholly inside Iraq territory. East of the escarpment which borders the Wadi Ajij and this line of sabkhas, bare open desert stretches uninterruptedly east towards the Wadi Tharthar, featureless except for occasional mounds, tombs, and sabkhas. The water of wells is almost invariably brackish from the gypsum in the soil; but after a winter of good rainfall grass springs up for a brief period. The whole of this desert is the grazing-ground of the nomadic Shammar.

(*b*) *The Assyrian Plains and Foothills*

This transitional region between Lower Mesopotamia and the Kurdish mountains is divided into three parts by the Little and Great Zabs. Southern Assyria includes the rectangle of country south-east of the Little Zab below its exit from the mountains near the Hab-es-Sultan Dagh. It is bounded on the south by the Jabal Hamrin and on the east by the Persian frontier (fig. 23). The northern boundary is less easy to define, but is taken as the first continuous mountain barrier which is formed by the Bazian ranges—Qara Dagh, Sagirama Dagh, and Kani Shaitan Hasan Dagh. Central Assyria is the land between the Tigris and the two Zabs, and northern Assyria is the triangle of country between the Tigris, the Great Zab, and the Jabal Bakhair and Aqra Dagh (fig. 24). Structurally this whole region is

akin to Kurdistan; historically its contacts have been more closely associated with Lower Mesopotamia; climatically it is transitional between the two and it includes the greater part of the 'rainfall zone'

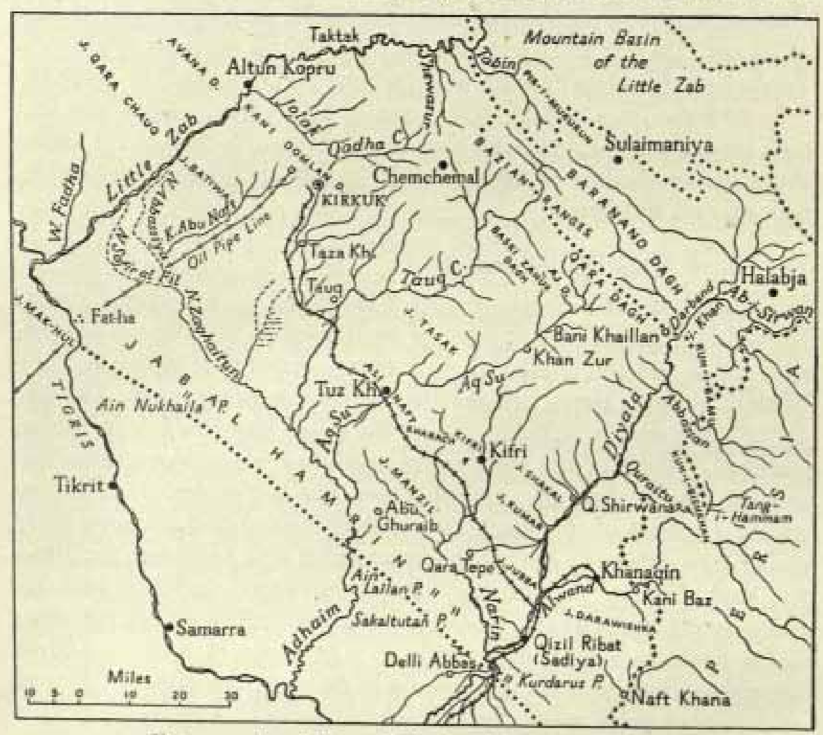


Fig. 23. *Foothills and Plains of Southern Assyria*

of Mesopotamian agriculture, in contrast to the 'irrigation zone' of the south. It is a land of easy passage.

Southern Assyria (fig. 23)

The Jabal Hamrin. This long narrow range which separates the plains of Assyria from those of Mesopotamia is the south-eastward extension of the Jabal Mak-hul (p. 79). Its highest points are over 1,500 feet above sea-level near the Fat-ha gorge, and it gradually loses height to about 700 feet near the Diyala. Beyond the Diyala a small continuation, about 500 feet above sea-level, forms a broad sandstone ridge for about 15 miles. The range has a gypsiferous core, flanked by red clays and sandstones, which give it the name of Jabal Hamrin ('the red range'), and which are overlain, particularly

on the north-eastern flank, by conglomerates and alluvium. The core is well exposed north-west of Ain Nukhaila, 26 miles from Fat-ha. The plain to the south is lower than that to the north, and the southern slopes are steeper than the northern, so that the range is more like the rise and tread of a staircase step up to the Assyrian plains than a barrier range. But passage is not easy, because small plateaux, shelves, and terraced ridges parallel to the main ridge are deeply dissected by stony lateral ravines sometimes with brackish streams (photo. 27). The northern slopes are more undulating and supply some pasture, but the southern are bare, and the whole range is treeless.

The principal passes are the Sakaltutan and the Ain Lailan, both north of Delli Abbas, about 700 feet above sea-level, and fit for animals; the Injana or Abu Ghuraib pass, 6 miles south-east of the break made by the Adhaim, about 600 feet, which now takes the main road from Baghdad to Kirkuk; and the Ain Nukhaila pass, about 900 feet, which takes a rough road connecting Tikrit with Kirkuk. Good water is the main difficulty, since almost all the springs are brackish because of the gypsum. All these passes were of some importance during the campaigns of 1917–1918. Those between the Adhaim and the Diyala were used by the Turks during their attempted counter-stroke after the British captured Baghdad, and by the British in their later advance to Kifri and Tuz Khurmatli; the Ain Nukhaila pass was successfully used by the British for a wide turning-movement to oust the Turks from their position at the Fat-ha defile in the final operations which opened the way to Mosul (p. 285). South-east of the Diyala gorge the Jabal Hamrin is crossed by the first-class motor-road from Baghdad into Persia at the easy Kurdaruz pass (558 ft.), but the railway to Khanaqin and Kirkuk makes use of the gorge, passing over a shoulder above the left bank (photo. 26).

The Diyala in the Assyrian Foothills. The Diyala or Ab-i-Sirwan issues from its mountain basin near Bani Khaillan at the foot of the Qara Dagh about 8 miles below the defile known as Darband-i-Khan. It is fordable in autumn and about 120 yards wide at the end of May when most of the snow higher up has melted. It receives no large tributaries on the right bank in this section until the Narin joins it immediately above the Hamrin gorge, but on the left there are three which add considerably to its volume: the Abbassan, which joins about 12 miles downstream of Bani Khaillan; the Quraitu Su, about 20 miles lower; and the important Alwand river, 30 miles below the junction of the Quraitu.

From Bani Khaillan to Qizil Ribat (Sadiya), immediately above the

Jabal Hamrin gorge, the river falls from 1,300 feet to 300 feet above sea-level: 15 feet a mile for the first 35 miles and 13 feet a mile in the second. It flows in a broad shingly bed uncovering many islands in the low-water season. Near Qala Shirwana, 10 miles below the Quraitu junction, it is a mile and a half wide in flood, has a strong current, and is lined by willows, osiers, and shrubs. Lower down it breaks up into numerous channels enclosing scrub-covered islands; the channels may be from 20 to 50 yards wide and 4 feet deep in the low-water season, but it is then fordable in many places.

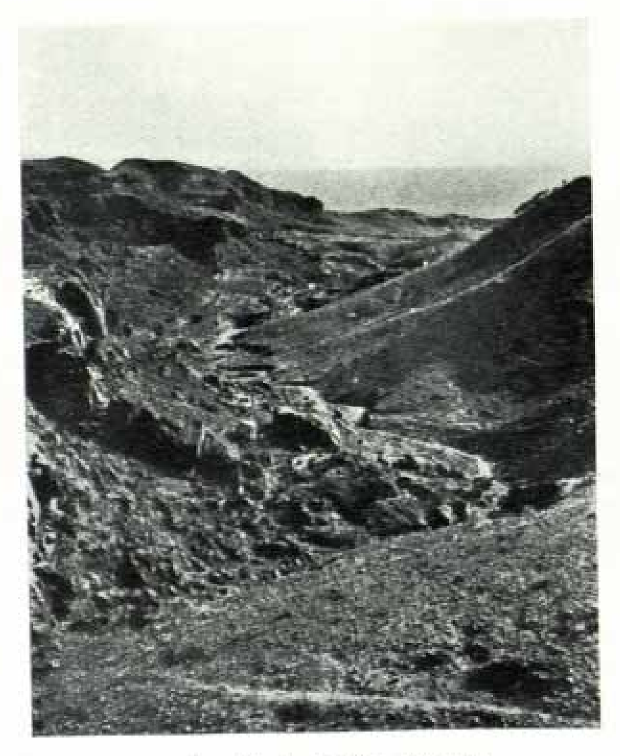
The Ab-i-Abbassan crosses the Persian border 4 miles below the Darband-i-Hul, its gorge through the Kuh-i-Bamu. The Quraitu Su also breaks through the frontier range, here the Kuh-i-Bishkhan, at the narrow Tang-i-Hammam defile and it then forms the boundary for 14 miles. The Alwand or Hulwan enters a broad undulating plain soon after reaching Iraq territory near the police post of Kani Baz, about 6 miles east of Khanaqin. Its upper valley in Persia is used by the modern motor-road to the Tak-i-Gireh pass (p. 571) and was the route of the ancient Sassanid road through Qasr-i-Shirin. At Khanaqin it has a low-water width of 60 yards and is generally fordable, but it is also bridged (photo. 28; fig. 87). It has a 10-foot rise in the flood season and then fills its flood-bed to a width of 100 yards or more.

Most of the country along the boundary is easily passable for pack animals. In the north the Kuh-i-Bamu rises to 5,000 feet, but between the Abbassan and the Quraitu even the frontier hills rarely reach 3,000 feet, and there are numerous tracks across them all the year round leading to grazing-grounds of Persian Kurds. The boundary north-east of Khanaqin follows the rounded crest of the Aq Dagh, gypsum hills with gentle slopes on the west, covered with a reddish nitrous soil and forming undulating grass-covered spurs separated by gullies about 100 yards wide.

On the left bank of the Diyala undulating plains and low hills alternate. Both the triangular Shaikhan plain bordering the Ab-i-Abbassan and the Quraitu plain are mostly under pasture, though some wheat, barley, and maize are grown, particularly along the Quraitu, and there are orchards near the villages. The Khanaqin plain is more closely settled and much more fertile and better watered; regular irrigation is practised from the Alwand below Khanaqin, which stands amidst palms and other trees on both sides of the river (p. 539). Much of the sub-soil of the Khanaqin plain is gravel, but is overlain by alluvium from the rivers so that the going is heavy after rain. Barley, wheat, and



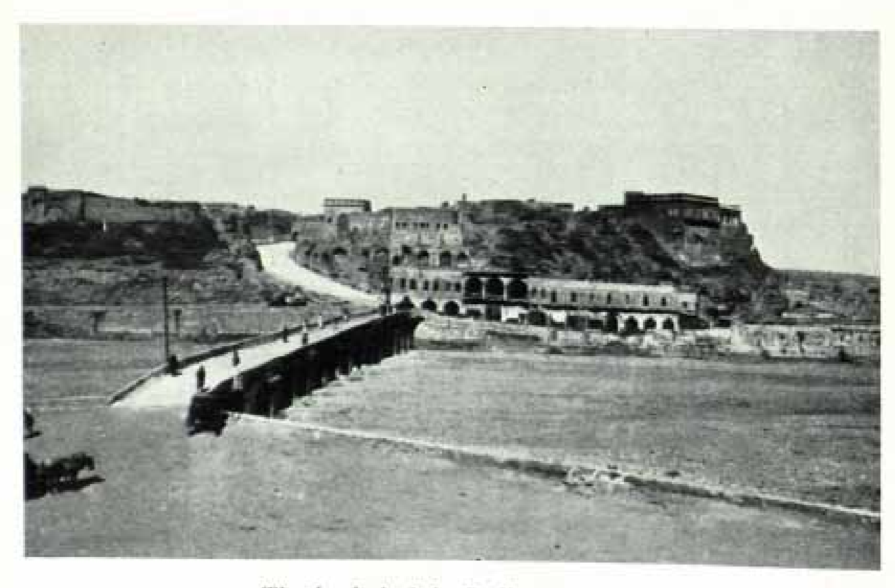
26. *The Jabal Hamrin from 'Table Mountain', east of the Diyala defile*



27. *A valley in the Jabal Hamrin*



28. *The Alwand (Hulwan) at Khanaqin*



29. *The dry bed of the Qadha Chai at Kirkuk*

tobacco give good yields; there are date-groves round Khanaqin and Qizil Ribat, also orchards of pomegranates, figs, and lemons; willows and poplars are occasionally found along the streams, but the general appearance of the landscape is treeless. The Jabal Darawishka and the Jabal Qizil Ribat are ranges of low hills, rising about 400 feet above the plain, which though intersected by small ravines are not difficult to cross.

On the right bank of the Diyala the slopes of the Aq Su watershed, which in one place reaches 3,500 feet above sea-level, are scored by gravelly torrent beds, but few contain any water, except after rain. There are few permanent settlements and most of the country in the north is only useful for pasture, though there are occasional rain-fed plots of cultivation and their number could be increased, since the soil is not infertile. Opposite the Khanaqin plain three parallel folds appear above the alluvium: Jabal Shakal, Jabal Kumar, and Jabal Jubba. The Jabal Shakal, or Kushki-Zangi ('dry hill'), has a serrated ridge with gypseous outcrops, rising about 600 feet above the plain at one point but sinking again below the plain north of Kifri. There are exposures containing coal of poor quality at the north-western end. The northern slopes of both the Jabal Shakal and the Jabal Kumar are steeper than the southern, and they fall to parallel valleys which afford easy routes between the Diyala and Kifri. South of the Jabal Kumar is a broad marshy plain watered in the south by a perennial distributary of the Diyala which passes through a gap in the low Jabal Jubba and irrigates the plain of Qara Tepe. This gap is used by the railway from Baghdad to Kirkuk.

The Hills and Plains of Kifri and Qara Tepe. The Jabal Shakal is continued north-west of Kifri by the Kifri hills (Kifri Dagh, Jabal Kharach, and Naft Dagh). The drainage of the country to the north is collected by two main streams. These unite in the plains about 3 miles south of Kifri which gives its name to the western and to the united stream. A third tributary, the Kura Chai, rising in the clay plain of Dasht-i-Pataki close to the Aq Su, breaks through the Kifri hills north-west of the town, crosses the broad Kifri plain between the Kifri hills and the parallel Jabal Manzil, and joins the Kifri Su at the eastern foot of this range. The river then cuts south-westwards across the strike of the rocks between the Jabal Jubba and Jabal Manzil to enter the plain of Qara Tepe. There it is joined by the drainage of the trough between the Jabal Manzil and Jabal Hamrin and the combined river, now known as the Narin Chai, meanders south-eastwards along the foot of the latter, with its bed cut from 20

to 30 feet deep in the alluvium, to join the Diyala immediately above its passage through the Jabal Hamrin. The going here can be very heavy after rain.

North of the Kifri hills the countryside is sparsely populated and little cultivated. These hills are bare, with gypsum, red sandstone, and brown and red clays predominating. Limestone appears in the Jabal Kharach. The southern slopes are steep with 300-foot cliffs in places.

The Kifri plain south of Kifri is about 10 miles wide but narrows north-westwards to 7 miles and is there commanded by the Kifri hills, the crest of which is 600 feet above it. It is treeless but well cultivated, though most of the stream-beds are dry except in winter and after rain. The Kifri Su is liable to sudden rises in level. Soil in the lower reaches of the streams is usually heavy, and many streams have deepened their beds. Wheat and barley are grown, there are a few date-palms and fruit-trees near Kifri, and good grazing everywhere. Occasional drought drives the shepherd tribesmen to the Diyala. The plain affords an easy route for the railway to Kirkuk.

The Jabal Manzil (or Jabal Gilabat) is a low rise scarcely 200 feet above the Kifri plain to the north and rather more than 350 feet above the Qara Tepe plain to the south; it is mainly overlain with conglomerates and clay, but there are sandstone outcrops. There is a sulphur spring at Abu Aleik and there are some indications of oil. The Chinchal valley to the south is mostly monotonous steppe, peopled sparsely by nomads. Farther south-east the Qara Tepe plain is covered by a fertile sandy loam. Millet is grown, there are vineyards on the slopes near Qara Tepe, and mulberry trees, orange-groves, and a few date-palms, cultivation here receiving some water from a distributary from the Diyala.

The Basin of the Adhaim. Three principal streams, the Aq Su, the Tauq Chai, and the Qadha Chai, combine to form the Shatt al Adhaim. They collect the whole drainage of the large area between the tributaries of the Kifri Su on the south-east, the Bazian ranges on the north-east, the watershed of the Little Zab on the north-west, and the Jabal Hamrin on the south-west. Much of the eastern half of the area is an undulating plateau of upper Fars rocks over 2,000 feet above sea-level, with short parallel folds rising a thousand feet or more above the general level, especially marked between the Aq Su and Tauq Chai. The western third is covered by the alluvium of the broad plains of Kirkuk.

The *Aq Su* (or Av-i-Spi) rises in the Qara Dagh, its chief head-

stream flowing south-east for 8 miles in an open valley before bending south and then south-west past the southern end of Aj Dagh. It collects water from numerous streams fed by small springs which are generally marked by clumps of oleander. The plateau soil is a rich clay and there is plentiful grass in the hollows. The bed of the main river as well as those of many of its tributaries are deeply cut and cliffed. Two miles above Khan Zur (Ibrahim Khanji) the width is between 100 and 200 yards in May, but it is said to be fordable even in winter. It narrows to 80 yards just above Khan Zur with 150-foot earthen cliffs on the left bank. There are patches of cultivation in some of the small valleys, but the whole area is much intersected by ravines.

About 9 miles below Khan Zur the Aq Su passes through the southern end of Jabal Tasak, a marked fold which extends for 20 miles north-westwards to the Tauq Chai and is mainly built of conglomerates and sandstone. There is some limestone and gypsum on the north-east flank in which are oil seepages at Farhad Beg, Nuqta Sadiya, Bahram Beg (Gil), and Nuqta Sairapa. The Jabal Tasak is easily crossed at many places.

South of the Jabal Tasak the Aq Su cuts its bed into the brown clay of a rolling plain and breaks through the north-western end of the Kifri hills between the ridges known as Ali Dagh and Naft Dagh. Tuz Khurmatli stands close to the river's exit, a prosperous little town surrounded by a few palm-trees and orchards of lemon, fig, pomegranate, apricot, and olive. Much rice is grown in the neighbourhood and some barley in the open plain to the west and north-west; but this plain is covered elsewhere with wormwood, origanum, and other bushes. There are sulphur springs and oil seepages in the Naft Dagh and Jabal Kharach, a small naphtha pit on the north bank of the river in the Tuz Khurmatli defile, and salt is obtained from a spring south of the town.

From Tuz Khurmatli the Aq Su flows south-west in a wide shingle flood-bed across an open plain. Near Tuz Khurmatli its banks are 15 feet high. It is usually fordable with ease, but is dangerous and impassable when swollen by rain or melted snow. Water is drawn off near the town for cultivation and lower down the stream normally carries little water. Twelve miles to the south-west it gradually curves south and then south-east and after being joined by the Tauq Chai breaks through the Jabal Hamrin.

The *Tauq Chai* rises in the Bazian trough and breaks through the Bazian ranges (Kani Shaitan Hasan Dagh, Sagirama Dagh) at the

Darband-i-Basira (p. 98; fig. 25). It also collects much drainage from the south-western flanks of these ranges and flows south past the north-western ends of the Aj Dagh and Baski Zanur Dagh. The country is broken up by ravines, but is otherwise open until the river approaches the Jabal Tasak which deflects it westwards. Here it collects other streams and winds between low walls of conglomerate, gypsum, and sandstone through the range. Below the defile its bed becomes a shingle flood-plain nearly 1,000 yards wide and it breaks up into many channels. Like the Aq Su, the Tauq Chai is liable to dangerous rises after rain and then becomes unfordable, but at no season is it less than 3 feet deep or 15 feet wide. The large village of Tauq is on the right bank about 4 miles from the mouth of the defile; its cultivated fields are irrigated by water from the river raised by water-wheels. Lower down across the plain its bed is very similar to that of the Aq Su, until near the Jabal Hamrin, 25 miles from Tauq, it is joined by the Zaghaitun Chai and flows south-eastwards, deeply cut into foothills.

The *Qadha Chai* rises from numerous springs in the plateau north-west of the grassy undulating Chemchemal plain, which forms a plateau watershed between this river and the Tauq Chai. Chem-chemal is a prosperous village around which a considerable amount of barley is grown, but the plain is mostly used for pasture. The Qadha head-streams have cut their beds into the soft soil and are now deeply incised. The river flows west-south-west until it meets the low Kani Domlan fold; this rises only 250 feet above the plain, but is a marked feature north-westwards to the Little Zab and is continued beyond that river by the more prominent Avana Dagh. This range of the Kani Domlan hills contains a long narrow outcrop of Fars rocks. The main mass is of brown and bluish sandstones with thick bands of blue clay, and limestone and gypseous exposures. It is bare of vegetation, but beneath the rocks is the rich oilfield of Kirkuk, from which crude oil is pumped 650 miles across the Jazira and the Syrian desert to Haifa and Tripoli on the Mediterranean coast.

The Qadha winds through the range to the large town of Kirkuk standing on both banks. The river here only holds water during the winter or after rain (photo. 29); it has a pebble-covered bed from 160 to 220 yards wide, but since it carries none of the run-off of the main mountain barrier to the north its spates are neither dangerous nor violent. Below Kirkuk it branches into several channels and flows south-south-west to near Taza Khurmatli. Lower down new springs make it perennial and it feeds a marshy tract which is drained south-

wards by the Zaghaitun Chai. Separate streams from the low hills between Tauq and Kirkuk also contribute water to the marsh; but the rainfall on the southern side of the Kani Domlan is collected by the Khir Abu Naft, which eventually flows into the Nahr Zaghaitun (or Zaghaitun Chai). There is a fair amount of cultivation dependent on rainfall along the 15-mile belt of country south of the Kani Domlan hills, but farther south a broad tract of country reaching to the Jabal Hamrin is lacking in water and forms only rough pasture. At some period in the past this country was watered by canals leaving the Little Zab about half-way between Altun Kopru and its junction with the Tigris. These canals, now marked by the Nahr Abbassiya and the Nahr Safir al Fil, fed the Nahr Zaghaitun, which thus acted as a perennial canal. There should be no serious difficulty in re-establishing some such scheme to-day in order to bring this land again under cultivation, but the modern Hawija canal irrigates only part of the area (fig. 75).

The Little Zab in the Assyrian Plains (figs. 23, 24)

After breaking out of the Kurdish mountains between the Hab-es-Sultan Dagh and the north-western extension of the Pir-i-Mukurun Dagh (p. 100) the Little Zab is deflected westwards by outliers of the Baranand and Bazian ranges. It passes through open undulating country until on approaching Taktak the hills close in on either bank. Below Taktak the river begins to widen its flood-bed between steep banks of earth and conglomerate, and it here flows over a bed of shingle and sand and encloses scrub-covered islands.

Altun Kopru (photo. 202) occupies a prominent position just above the point where the river passes through the Kani Domlan hills. It forms the southern apex of the triangular Erbil plain and owes its importance to its position where the ancient route between Erbil and Baghdad crossed the Little Zab.

From its defile (*darband*) near the Hab-es-Sultan Dagh to Altun Kopru, a direct distance of 50 miles, the Little Zab falls from 1,750 to 850 feet above sea-level, an average of 18 feet a mile, but there are occasional sandstone ledges which form small rapids. In this section there are a number of small rain-fed tributaries: the Rubar-i-Koi, which waters the plain of Koi Sanjaq, and the Shalgha, which has an upper basin among the foothills of the Bana Bawi Dagh, are the only perennial streams on the right bank; the Shewasur, fed by springs in the broken country north of Chemchemal, is the only perennial tributary on the left. Opposite the Shalgha the low grassy spurs of

the Khalkhal Dagh slope gently south-westwards to the valley of the Jolak, broad and fertile, which has always offered an easy route between Altun Kopru and Kirkuk. Its perennial stream enters the Little Zab 2 miles below Altun Kopru.

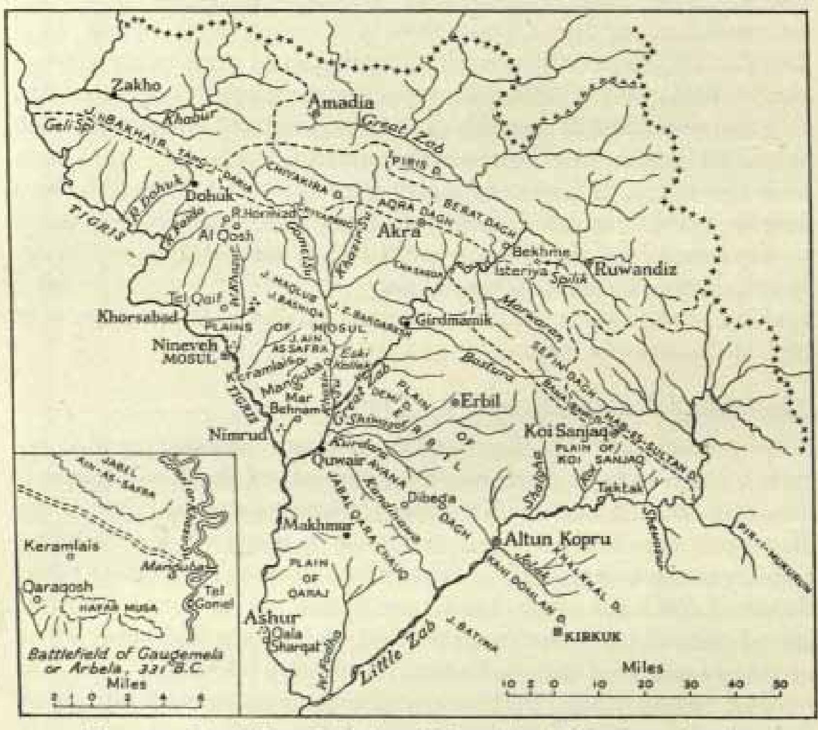


FIG. 24. *Foothills and Plains of Central and Northern Assyria*

Within the next 20 miles the Little Zab passes through gaps in two structural folds, first the oil-bearing Avana Dagh and Kani Domlan hills, then the Jabal Qara Chauq and its south-easterly extension, Jabal Batiwa. The hills on the right bank are considerably higher than those on the left, and the ground between them better watered and more undulating. The river flows in a broad bed with many islands. Beyond its passage through the line of the Jabal Qara Chauq, cultivation becomes limited to small patches along the river banks, to which water is sometimes lifted from the river; but on either side is a level plain at about 500 feet above sea-level with pasture only in spring. The plain on the right bank is more broken by stream-beds than that on the left, the Wadi Fadha being the chief; but both are

almost waterless for the greater part of the year. Such are the conditions for the last 35 miles of the course of the Little Zab. In the last 55 miles from Altun Kopru to its junction with the Tigris, the river falls from 850 feet to about 450, or only a little over 7 feet a mile. For a brief account of its regime see p. 43.

Central Assyria (fig. 24)

The region between the Little and Great Zabs is occupied by the plain of Qaraj or Makhmur in the south, by the two parallel ranges of hills, Jabal Qara Chauq and Avana Dagh crossing the region from south-east to north-west in the middle, and by the plains of Koi Sanjaq and Erbil in the north.

The triangular *plain of Qaraj*, bounded on the west by the Tigris, on the east by the Little Zab, and on the north-east by the Jabal Qara Chauq, is traversed from north to south by the Wadi Fadha which joins the Little Zab about 4 miles above the confluence with the Tigris. The plain is intersected by watercourses, especially in the north, many of them brackish and some sulphurous, and most of them draining into the Wadi Fadha. A very few are perennial, but only for short distances; some form *kandas* with deep-cut banks. There are a few hillocks rising one or two hundred feet above the plain, but the general appearance is flat with a gradual slope from 500 feet above sea-level in the south to 1,000 feet along the foot of the Qara Chauq. The climate is torrid and for most of the year the aspect is that of desert country. Wells are scarce, particularly in the south, and rainfall varies from year to year, but in years of plenty it collects in pools and provides water for nomad flocks. The soil has a reputation for fertility, but is at present wasted through lack of water. Formerly an old canal, the Nahr Qanausa watered the riverain belt on the left bank of the Tigris. Ibn Hawqal, the Arab geographer, writing in the tenth century A.D. praised the magnificent fields occupying the broad plains, and there are many *tels* and other signs of a prosperous settled population in the past. Makhmur, almost the only permanent settlement, is close to the site of an ancient town of considerable importance; it is the junction of routes from Mosul, Qala Sharqat, and Erbil.

To-day the population varies with the rainfall. After two or three years with plentiful winter rains the region near the hills is studded with settlements; after lean years only a few favoured spots are inhabited. But generally about the beginning of March the desert is flushed with spring grasses which last for a month or six weeks. At this season Kurds bring their flocks southwards from the Erbil plain;

later they depart and the Qaraj again becomes empty and brown, except for narrow strips along the river banks where some cultivation is carried on.

Communications are easy except for the lack of water. There is only one permanent spring along the first 20 miles on the route from Qala Sharqat to Makhmur. In the last operation of the war of 1914–1918 the cavalry which made a wide turning movement across this region in November carried water for their horses and men in Ford vans. There are occasional ferries over the Tigris but no bridges.

The *Jabal Qara Chauq* stretches for 40 miles between the two Zabs, a rough, gaunt black range, worn by rain; it is treeless but has some sparse oak-scrub, and it is grass-covered in spring. It rises to 2,636 feet and 2,915 feet on either side of a low gap (1,200 ft.) which forms the rough pass of Husain al Ghazi, on the road between Qala Sharqat and Erbil. Elsewhere tracks across it are chiefly limited to the lower ends of the range towards the Great and Little Zabs.

Immediately north-east of the Qara Chauq is a shallow trough known as the Kandinawa, averaging 12 miles in width, and drained north-westwards and south-eastwards by tributaries of the two Zabs. The soil is very fertile, but in the south-eastern half the ground is much intersected by rain-fed stream-beds (*kandas*). Here rainfall is sometimes insufficient for good crops, and water is derived from springs and wells, many of them brackish. But the northern half is one of the most consistently fertile regions of the Erbil division; it is slightly undulating, much less cut up by *kandas*, and has many wells of sweet water. Two perennial streams are also used for irrigation, and there is a larger settled population than in the south. Crops ripen a fortnight later than at the southern end of the Kandinawa, and at the beginning of May the landscape is still green. The principal village is Dibega on the Qala Sharqat–Erbil road. Quwair, on the Great Zab, has always been an important crossing-place between Mosul and Erbil.

The *Avana Dagh* rises from the Erbil plain about 9 miles east of Quwair and stretches south-eastwards for 30 miles to the Little Zab, which it reaches immediately below Altun Kopru. It is treeless but grass-covered, and is an extension of the Kani Domlan hills; together they form the Kirkuk oilfields. The surface strata are thrust-faulted so that the south-western slope shows a succession of rock faces.

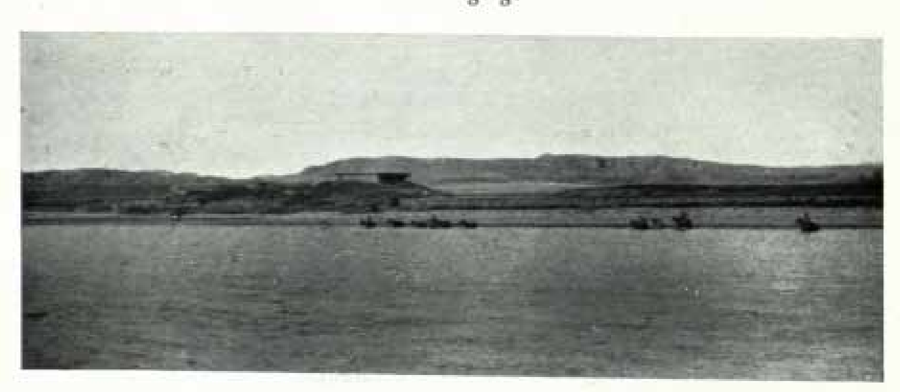
The *plain of Koi Sanjaq* includes the broken watercourse of the Shalgha and the basin and tributaries of the Rubar-i-Koi, which have already been mentioned as affluents of the Little Zab. It is much

30. *Jets of burning natural gas near Kirkuk*

31. *The Little Zab at Altun Kopru*



32. *Exit of the Great Zab from the Kurdish mountains south of the Bekhme gorge*



33. *Pony ford over the Great Zab at Isteriya in January*



34. *The grassy valley of the Aqra Su, northern Assyrian plains*

intersected by stream-beds, lined by oleanders and other shrubs. Trees are scarce, water is mostly obtained from small springs, and cultivation is mainly confined to the low plateaux between the streams. The surface rises gradually northwards to a broken maze of low red sandstone hills overlooked by the grey limestone wall of Hab-es-Sultan Dagh on the north.

The *Erbil plain*, or Dasht-i-Haulair, is by far the most important region between the two Zabs. In the north it is undulating and stony; opposite Eski Kellek, where the direct road between Mosul and Erbil crosses the Great Zab, the gravelly Demir Dagh rises in grass-covered slopes to a barren rounded summit 200 feet above the plain. But elsewhere the Erbil plain forms a gently rolling landscape, with a fertile soil covering conglomerates and sandy shales. The drainage pattern is nowhere well defined except towards the Avana Dagh, where the Chai Shiwasor and Chai Kurdara flow west to the Great Zab and together form a shallow undulating basin. The whole plain is cultivated and presents a rolling green landscape in spring. Many of the streams are perennial. The principal crops are wheat and barley, and the district is probably the best wheat-producing region of Iraq. Some rice is also grown near the town of Erbil. The population is denser than the average (p. 353), and there are many villages, most of them inhabited by non-tribal Moslem Kurds, but others, including Ankawa 2 miles north of Erbil, occupied by Christians. All cultivation is dependent on rain or small distributaries from streams. But the region has been well irrigated in the past, and the *karez* system of irrigation (p. 442) has been a feature of this district.

The ancient Royal Road of the Achaemenid Persians passed from Mosul to Erbil by way of Eski Kellek and thence to the Little Zab at Altun Kopru. To-day there are bridges at Eski Kellek and Altun Kopru, and this ancient highway is metalled and has a tarmac surface. The huge mound of Erbil, probably of prehistoric origin, has never been unoccupied since earliest times (*frontispiece*). It was the ancient Arba-ilu ('the four gods') and later the classical Arbela, which gave its name to the decisive battle of Alexander the Great over Darius III in 331 B.C. (p. 227).

Northern Assyria (fig. 24)

This triangular region is bounded by the Tigris on the west, the Great Zab on the east, and the Kurdish mountains on the north. The greater part is made up of the plains of Mosul, the richest region of Assyria at the most spectacular period of its empire, but there is

also a belt of broken country, the plains and foothills of Dohuk with the outer range of Jabal Bakhair, which may conveniently be ascribed to this region.

The Plains of Mosul. The eastern half of this area is drained by the Great Zab and its principal affluent, the Khazir Su; the western half by a number of lesser streams, the chief of which, the Wadi Khosar, rises in the Al Qosh foothills and joins the Tigris through the site of ancient Nineveh, opposite Mosul. The plains are undulating steppe country with a gentle slope upwards to the north, from 700 feet above sea-level in the south to about 2,000 feet where the foothills begin to rise more steeply. Short but prominent hills, marking by their direction from south-east to north-west the strike of the strata, emerge above the general level, the most important being the Jabal Ain as Safra (2,206 ft.), Jabal Bashiqa (2,177 ft.), Jabal Maqlub (3,468 ft.), and Jabal Zirga Bardaresh (1,661 ft.).

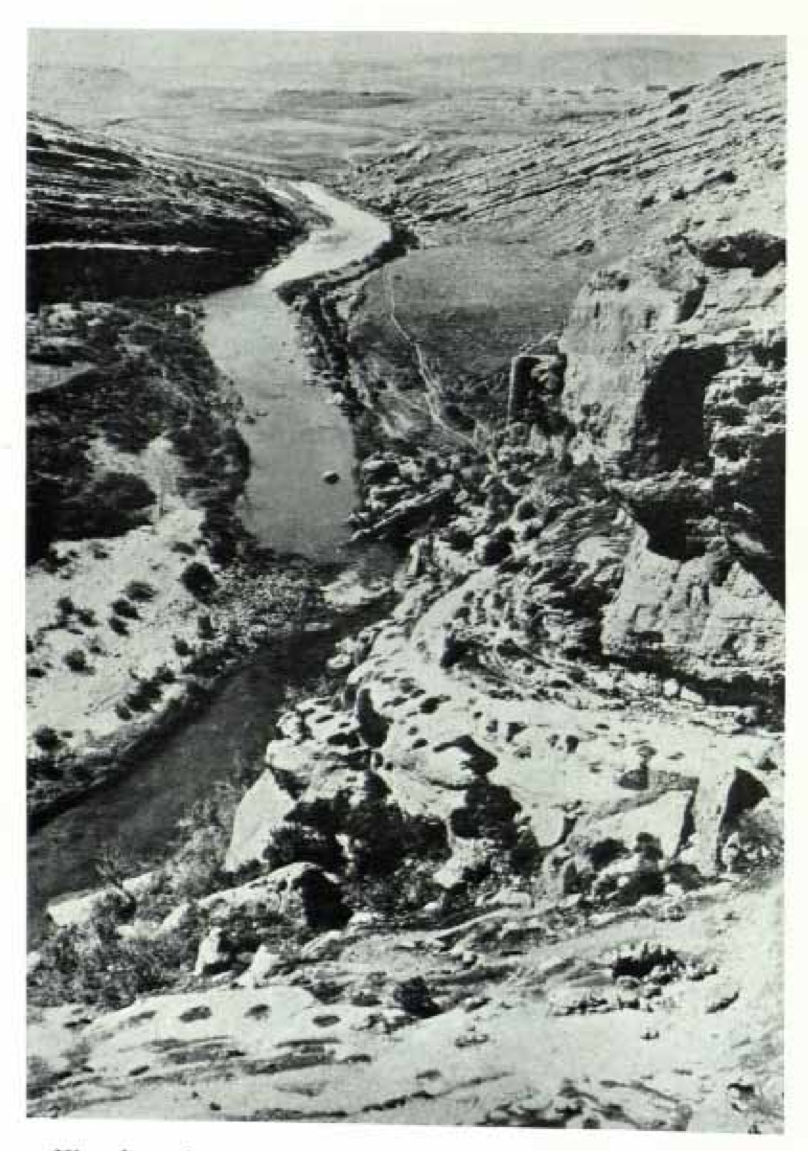
The *Great Zab*, after breaking through the Berat Dagh at the Bekhme gorge (p. 102), is a wide powerful river at all seasons. At Isteriya, about 6 miles below Bekhme, its width has been recorded as 400 yards and its depth about 3 feet in January. Its current has been measured as 6 miles an hour in both January and May, and it has been forded by unladen animals in both these months when there has been no recent rain (photo. 33). In the flood season, or after heavy rain in the hills, the Great Zab is unfordable either here or elsewhere. Passage is then only possible by *kellek* ferries, which are available at several places, or by the bridge at Eski Kellek.

Below Isteriya the river receives on the left bank the perennial Mawaran and Bastura affluents which drain both flanks of the Sefin Dagh (p. 104), but only a little water is added on the right bank until the Khazir Su enters about 18 miles above the Tigris confluence. Grass-covered conglomerate hills on the right bank make rough going, but tracks could be made for wheeled vehicles without great effort. A river-gauge is maintained at Girdmamik ferry (p. 42). The Mosul–Erbil road crosses the Great Zab by a steel bridge at Eski Kellek. The river here is 150 yards wide in October, 10 feet deep, and has a fairly strong current; it covers its bed three-quarters of a mile wide in the flood season.

From Bekhme to its junction with the Tigris, a distance of 75 miles, the Great Zab descends from 1,300 feet above sea-level to about 700 feet, or about 8 feet a mile, and like the Little Zab in its lower course it breaks up into a number of channels enclosing grass-covered or sandy islands.

35. *Nabi Yunis, mosque of the Prophet Jonah, at Nineveh opposite Mosul*

36. *The ruin mounds of Nineveh and the Mosul plain seen from the air*



37. *View down the gorge of the Gomel Su towards the north Assyrian plains*

Between the Great Zab and the Khazir Su there is open plain, broken in the north by streams descending from the Aqra Dagh, and by the hills of Cha Sarda (2,879 ft.) and Serderiya Tepe. Between these hills and the Jabal Zirga Bardaresh is an open cultivated plain, but in the angle between the two rivers the country is again much scored by stream-beds.

The Khazir Su rises in the Piris Dagh and breaks through the Aqra Dagh (p. 107). Twelve miles to the west the Rubal Atrush, or Gomel Su, also breaks through the Kurdish mountains (photo. 37). The two streams converge across the grassy plain and meet to the east of Jabal Maqlub. Below the junction the river cuts a winding course between the hills and through the cultivated plain to the south. Near Manguba a steel bridge takes the Erbil–Mosul road over the river, which here flows in a shingle flood-bed 300 yards wide. Its width at the ford near the bridge has been recorded as 60 yards in October and 30 yards in January, and its depth between 2 and 3 feet in both months: it is then easily fordable, but after heavy rain it rises rapidly to 8 feet, covers most of its bed, and becomes impassable.

To the west of the Khazir Su the general level of the plain is broken by tributaries of the Gomel Su, and by the Jabal Maqlub, Jabal Bashiqa, and Jabal Ain as Safra. The Jabal Maqlub is steep and rocky and its spurs are intersected by ravines. It is a prominent landmark rising 1,500 feet above the plain. High up on its southern flank is the Christian monastery of Mar Mattai, enclosed within fortress-walls. The Jabal Bashiqa is lower and forms a more rounded ridge of sandstone, limestone, and gypsum. The Jabal Ain as Safra receives its name from a spring of acid yellow water. To the south of it is the level plain of Keramlais with the rise of Hafar Musa beyond. This plain has been identified with the battlefield of Gaugemela or Arbela (331 B.C.), chosen by Darius III because of the ease with which he could deploy and operate his chariots. The rougher ground to the south is said to have been used for Alexander's outflanking attack. The topographical features fit closely with Arrian's account of the battle, and there is reason to connect the mound Tel Gomel, about 2 miles south of Manguba, with the village of Gaugemela.[1]

The whole of the plain between the Tigris and the lower Khazir Su and Great Zab has a rich heavy soil and is well cultivated, though now entirely dependent on rainfall. It was the granary of the ancient Assyrians and contains the sites of three of their most famous capital

[1] *Geographical Journal*, vol. c, p. 163. The Great Zab is the Lycus of classical records.

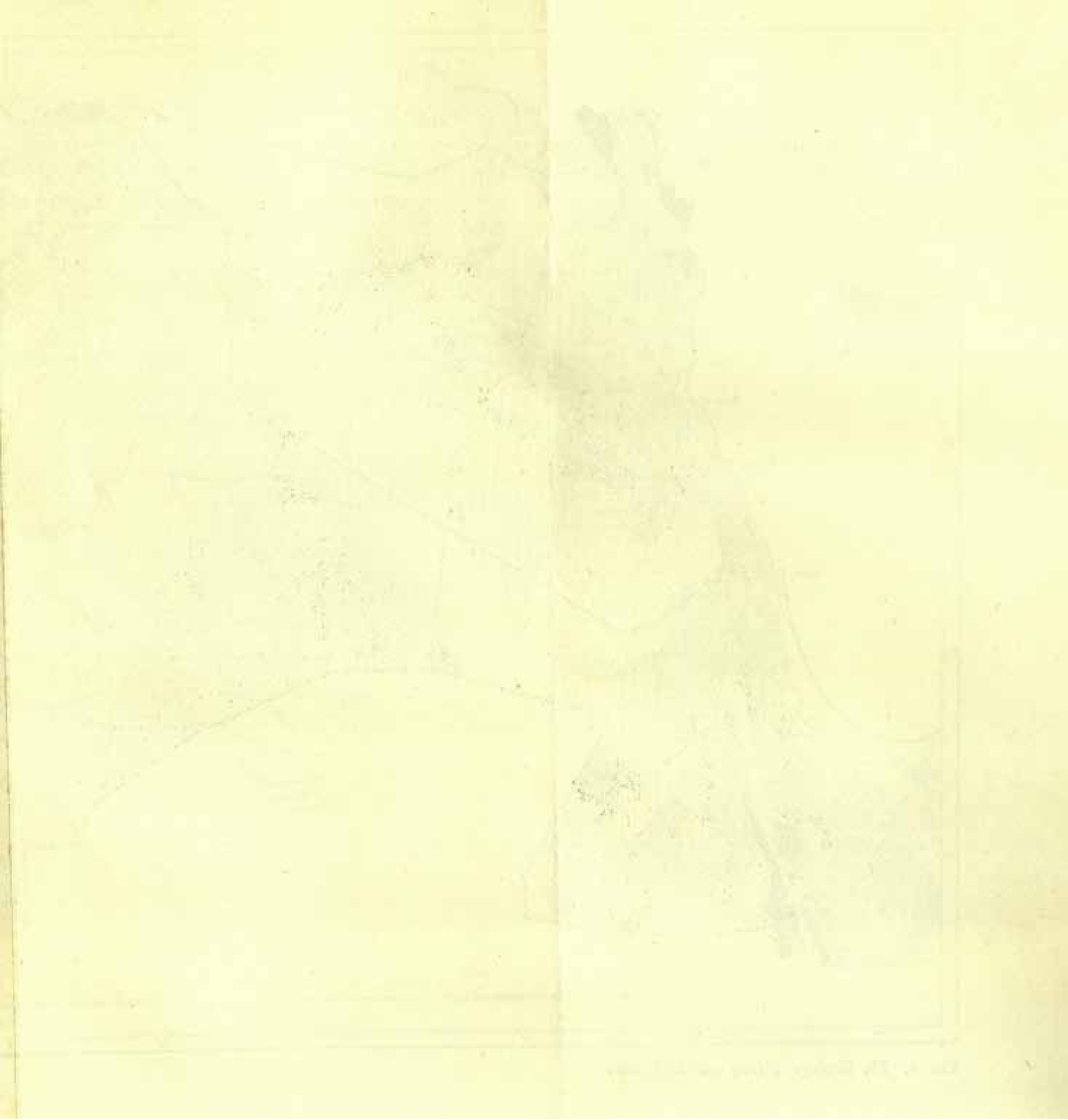
cities: Calah (Nimrud), Nineveh, and Khorsabad. Some 5 miles north-east of Nimrud is the early Christian monastery of Mar Behnam (Khidr Elias), on the road between Mosul and Quwair.

West of the Jabal Bashiqa the plain is traversed by the Wadi Khosar, which after draining the crumbling red sandstone region below the Al Qosh foothills, cuts a bed southwards and enters the Tigris through the ruin mounds of Nineveh. Much of the water is used for local irrigation, with the result that drinking-water is scarce for about 25 miles north of Mosul. Ploughing takes place in December and early January; wheat and barley are the principal crops of all this region, with millets, maize, lentils, beans, cucumbers, and melons as subsidiary crops. Orange and fig, pear and plum trees are grown around the many small villages, and there are occasional olive-groves. One or two low hills near Tel Qaif and elsewhere relieve the monotony of the plain which is also dotted with the mounds of ancient settlements. Some of these rise to a considerable height, but few have been excavated or identified.

In the extreme north of the plain the land between the Jabal Bakhair and the Tigris forms a low plateau, the clay and gravel of which is scored by watercourses from the foot of the hills sometimes as much as 300 feet deep. The principal streams are the Rubal Dohuk and the Rubal Faida.

The Foothill Belt. The north Assyrian plains are bounded on the north by the Jabal Bakhair, variously known as Jabal Abyad or Chia Spi ('white hills'), forming a barrier 40 miles long and from 3 to 5 miles wide, by the Al Qosh foothills, and by the Aqra Dagh. The upper strata are of limestone. Twelve miles east of the western end is the Geli Spi or Zakho pass which takes the road to Zakho. The range widens and is more eroded in the south-east towards Dohuk, where the Rubal Dohuk drains a fertile valley between the Tang-i-Daria and the outer hills. Much fruit is grown in this upland valley and there are extensive vineyards; the chief cereals are wheat and rice, but much of the ground becomes very dry in summer.

The south-eastern slopes of the Tang-i-Daria are connected with the Al Qosh foothills, which continue the line of the Jabal Bakhair beyond Dohuk. These foothills include a number of broad ridges and plateaux, about 3,000 feet above sea-level, but towards the north a height of over 4,000 is reached. The chief constituent of these hills is a hard limestone, and the strata are much contorted, but there are low crumbling ridges of soft sandstone on the south. Immediately behind the village of Al Qosh a limestone cliff marks the beginning of



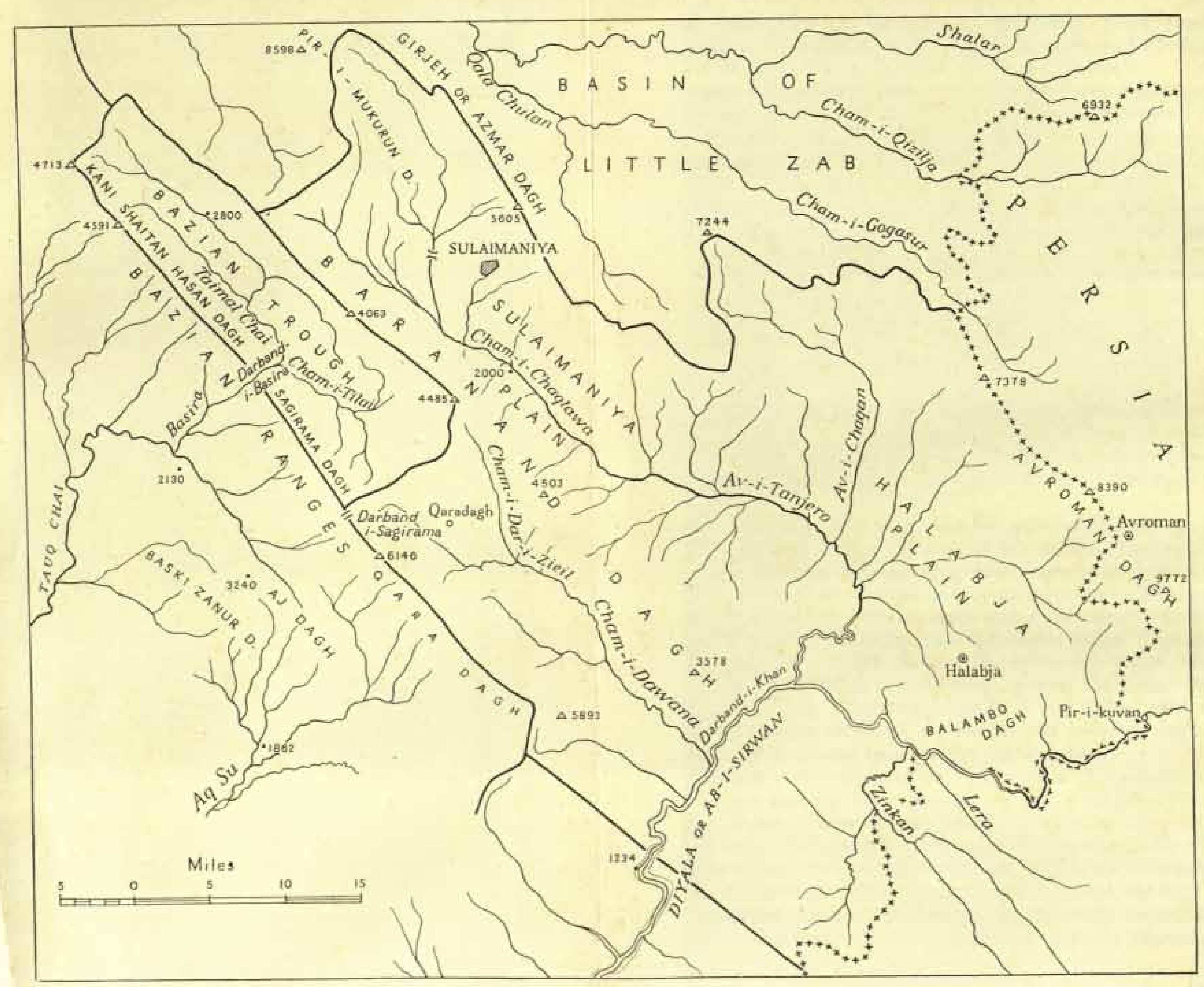


FIG. 25. *The Mountain Basins of the Diyala and Adhaim in Iraq (heights in feet)*

the mountains. The Christian monastery of Rabban Hormizd clings to these cliffs in the style of a Tibetan lamasery. In the east the 3,000-foot ridge of Chiyapang forms the last link of these foothills east of the Gomel Su.

The rocky wooded hills of the Chiyakira Dagh and Aqra Dagh which form the boundary to the Assyrian plain to the east are dealt with later (p. 106). Their rough southern spurs sink down to grass-covered gravelly hills cut by torrent beds. In one such ravine is the town of Aqra (p. 526).

Iraqi Kurdistan

(*a*) *The Mountain Basins of the Diyala and of the Adhaim* (fig. 25)

The boundaries of this region are the watershed of the Tauq Chai and Diyala on the north, the Persian boundary on the east and south-east, and the Bazian ranges, made up of the Qara Dagh, Sagirama Dagh, and Kani Shaitan Hasan Dagh, on the south-west (p. 81).

The Diyala, or Ab-i-Sirwan as it is known on both sides of the Persian frontier, drains a large mountain area of western Persia before breaking between the Avroman Dagh and Kuh-i-Shand to meet the international boundary near the village of Pir-i-Kuvan, 35° 06′ N., 46° 12′ E. Its course is a succession of narrow and inaccessible defiles, flanked by precipices gashed by ravines, but where the mountains recede their slopes are wooded. The Avroman Dagh receives a heavy snowfall in winter, so that the Sirwan in this section is most inaccessible in spring; for nearly 20 miles the river forms the boundary between Iraq and Persia.

About the middle of this section the river turns north-west along the strike of the folded rocks, but is separated from the broad trough containing the plains of Halabja and the Tanjero by the long Balambo spur of Avroman Dagh. It picks up two Persian tributaries, the Lera and Zinkan, before meeting the Av-i-Tanjero, and with this affluent it breaks south-west through the Baranand Dagh at the defile known as Darband-i-Khan. Five miles farther on it passes the south-eastern end of the Qara Dagh, and thereafter the valley broadens, the gradient of the river lessens, and the bed widens, the waters flowing between banks of shingle (p. 83).

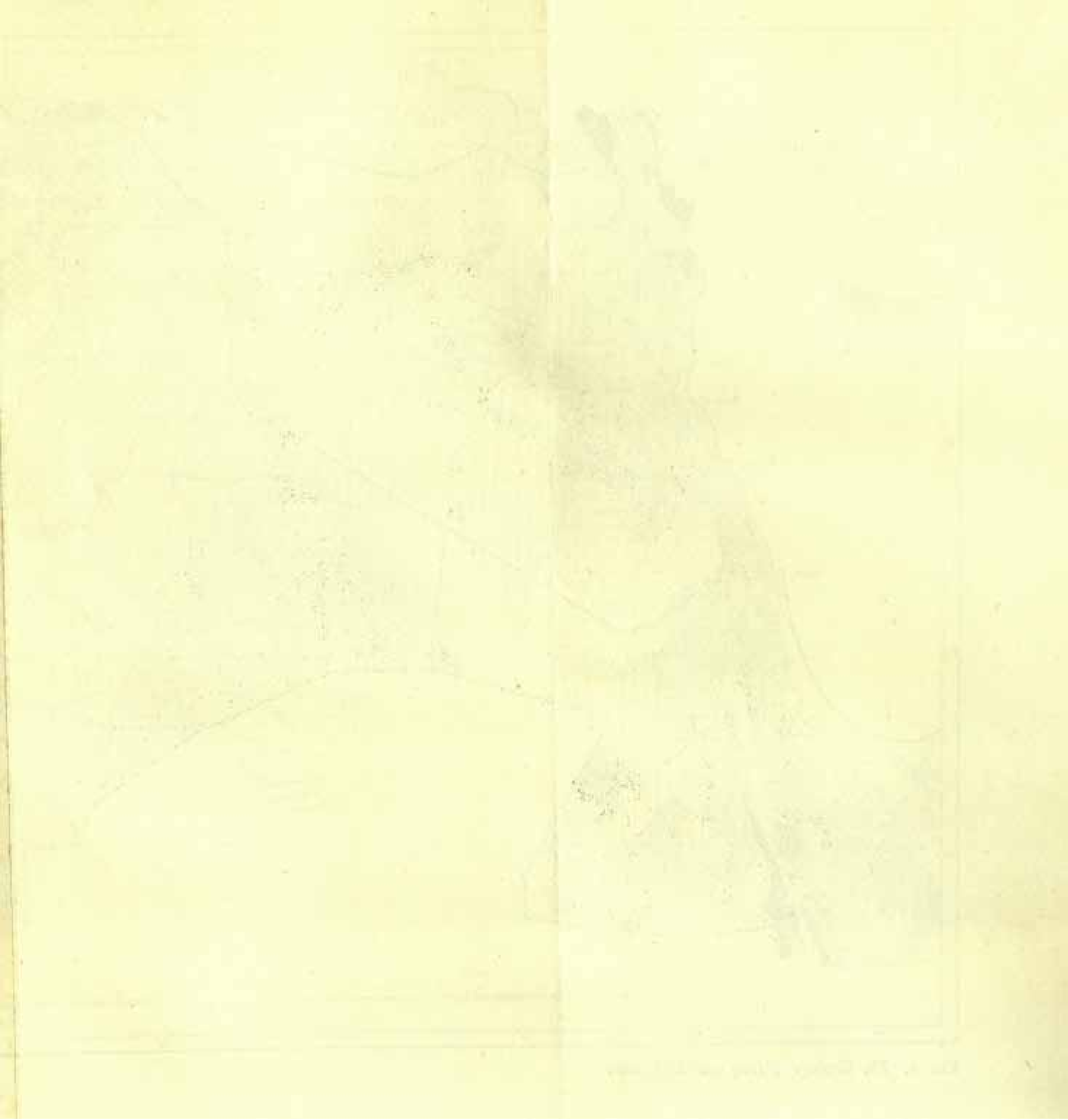
Two large right-bank tributaries join the Ab-i-Sirwan: the Av-i-Tanjero, draining the fertile Sulaimaniya trough between the Azmar Dagh and Baranand Dagh, and the Cham-i-Dawana, from between the Baranand Dagh and Qara Dagh. The first of these is already a

considerable stream before it adds to its volume in the Halabja plain by picking up numerous snow-fed tributaries from the Avroman Dagh. Its fertile valley, difficult of access except by a few easily defended routes, mostly near its head, has always enabled its people to withstand economic pressure from without, to defy authority, and to lead a predatory independent life. The Dawana valley is shorter, the Bazian country which continues the trough to the north-west being watered and drained by head-streams of the Tauq Chai, the northernmost feeder of the Adhaim; these break through the Bazian range at the defile of Darband-i-Basira.

The mountains of this region still show their simple folded structure, each fold lying parallel to its neighbour with trough between, until near the frontier they become crumpled and covered by the nappe of extraneous rocks which build up Avroman Dagh and its spurs to over 9,000 feet. Three folded ranges are clearly distinguishable, the Bazian, the Baranand, and the Girjeh or Azmar Dagh, while a fourth, the Pir-i-Mukurun Dagh, enters the region at 6,000 feet north-west of Sulaimaniya, but soon loses altitude, plunges downwards, and disappears. The absence of this fold to the south-east accounts for the breadth of the Sulaimaniya plain.

The *Bazian* ranges rise at their south-eastern end steeply but not precipitously from the Sirwan valley to form the narrow ridge of Qara Dagh, which for the greater part of its length is over 5,000 feet above sea-level; it is wooded and its lower slopes are well watered, green, and pleasant in spring. About 30 miles from the Sirwan its precipitous crest is notched by the Darband-i-Sagirama, 'the pass of the ladders', by which a pony-track crosses to the village of Qaradagh in the head of the Dawana valley. Then the range rises again and for 10 miles is known as the Sagirama Dagh, which is completely severed from the Kani Shaitan Hasan Dagh by the Darband-i-Basira, passable only with great difficulty. The crest of the Kani Shaitan Hasan Dagh is lower and easier than that of Sagirama Dagh; about 15 miles north-west of the Darband-i-Basira the Bazian pass, a low narrow gap hemmed in by mountains, takes the metalled road from Kirkuk to Sulaimaniya to which it is the key (p. 572).

The *Bazian trough*, drained at about 2,500 feet by the head-waters of the Tauq Chai, contains fine pastures. Though the land near the main streams tends to be sodden and marshy, the more secluded valleys are cultivated with rice, cotton, sesame, and tobacco, while vines are grown on the slopes. The heads of the Dawana valley and its tributary the Dar-i-Zieil are rather similar, with Qaradagh village



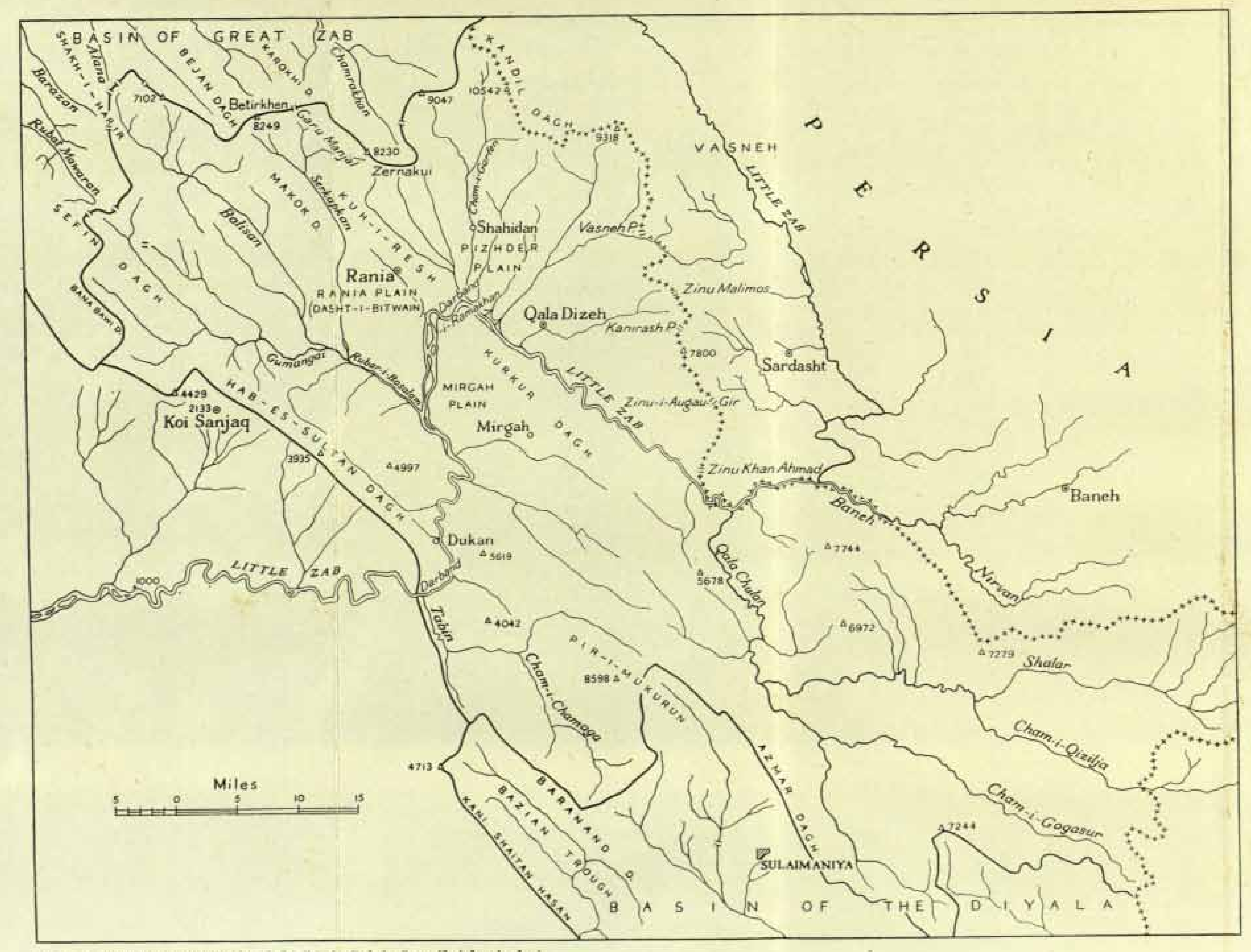


FIG. 26. *The Mountain Basin of the Little Zab in Iraq (heights in feet)*

(b) *The Mountain Basin of the Little Zab in Iraq* (fig. 26)

This region is bounded by the Great Zab watershed on the west and north, by the Persian boundary on the east, by the Diyala watershed on the south, and by the Hab-es-Sultan Dagh and Tabin watersheds on the south-west. Before entering Iraq the Little Zab drains a broad upland valley some 60 miles long, with fine summer pastures grazed by the Mangur and other tribes, and it is joined by the Baneh tributary, which also has a fairly large basin among the high mountains of western Persia. The international boundary is formed by the Baneh river for about 6 miles above the junction and the Little Zab for 12 miles below. The frontier mountains are covered by the nappe of Persian rocks almost to the point where the Qala Chulan enters the Little Zab from the south, and both the Baneh with its tributary the Nirvan, and the Shalar, Qizilja, and Gogasur—long affluents of the Qala Chulan—drain valleys contrary to the strike of the folded rocks farther west. The south-east to north-west pattern, which is so marked in the Sulaimaniya and Bazian districts, is, however, continued right through the basin of the Little Zab, the river itself following the strike from the confluence of the Qala Chulan for 28 miles until it breaks through the Kuh-i-Resh at Darband-i-Ramakhan and broadens its bed southwards across the Rania plain. Fifteen miles farther south the hills again close in, and the Zab forces a winding passage between the Hab-es-Sultan Dagh and the Pir-i-Mukurun Dagh to enter the zone of the Assyrian foothills (p. 89).

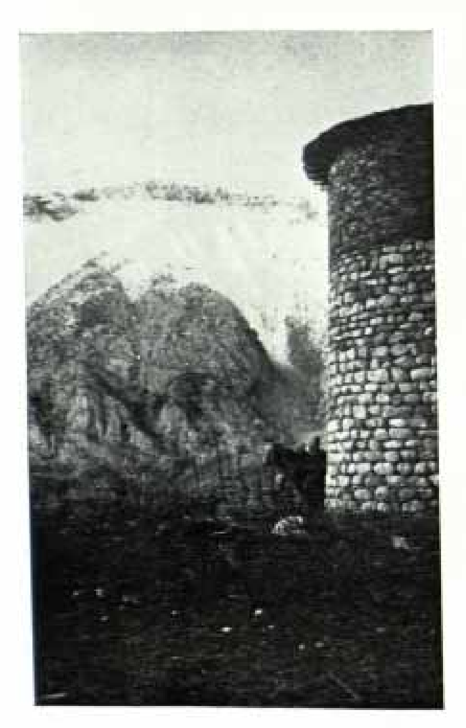
The Hab-es-Sultan Dagh and the Kuh-i-Resh form the two chief barriers. Between them on the right bank the Rubar-i-Basalam collects the drainage of a number of valleys between parallel folds to the north-west which continue across the watershed into the basin of the Great Zab. On the left bank of the Little Zab, opposite the Rania plain, open ground is less extensive, and the troughs are generally drained by smaller independent tributaries, while in the south the Tabin has captured two of them.

In describing the basin of the Diyala, four parallel ranges—the Bazian, the Baranand, the Pir-i-Mukurun, and the Girjeh or Azmar Dagh—were mentioned (p. 98). The first of these rapidly loses height as it approaches the Little Zab and becomes one of the discontinuous foothills of the Assyrian region (p. 89), though it can be traced almost as far as Erbil. The Baranand Dagh and Pir-i-Mukurun close in towards the Little Zab and to the north-west form the double ridge of Hab-es-Sultan Dagh. The Azmar Dagh and new folds which



38. *The Zakho plain seen from the foothills of Jabal Bakhair on the south. Zakho in the right centre. Turkish Kurdistan in the distance*

39. *Dumila Dagh, a spur of the Kandil Dagh, near Walash, a village of Balik Kurds*



40. *Bastion of Laiozha fort near the watershed between the Great and Little Zabs. Shakh-i-Bairamkhan in the background*

appear beneath the nappe front, though broken by the Rania plain, reappear to the north-west and together build the watershed of the Great Zab. North-east of the Kurkur Dagh and Kuh-i-Resh the Pizhder plain is levelled by debris from the frontier mountains which buries the folds beyond the elbow of the Little Zab, in much the same way as the Halabja plain is levelled by the debris of Avroman Dagh.

On the west bank of the Little Zab the *Hab-es-Sultan Dagh* forms a grey double-ridged limestone wall, 3,500 to 4,000 feet above sea-level, but it is crossed by three mule-tracks, so that it is less of a barrier than it appears at first sight; it is also easier than either its extension south-east across the Zab or the Sefin Dagh which continues it to the north-west.

The *Rania plain* or *Dasht-i-Bitwain*, with an area of about 150 square miles, is watered by a number of streams, some of which are supplemented by warm springs. Drainage in the lower valleys and in the plain is bad; the ground in winter and spring is sodden and often marshy, and though the soil appears to be rich and heavy it is little cultivated except for some tobacco, much of it being covered by grass, sometimes shoulder high. Shepherds' tracks lead up most of the tributaries; there is an easy though little-used pony-route up the Gumangai tributary which reaches Shaqlawa in the Rubat Mawaran valley (p. 104); the Balisan valley, between the Harir and Makok (Bejan) Dagh, has cols leading both to the Barazan and Alana valleys (p. 105); the most easterly stream, the Serkapkan, flows south in a very narrow valley from the Garu Manjal col and cuts off the end of the Makok ridge. East of this the narrow, black, rocky ridge of Kuh-i-Resh isolates the drainage of the Rania plain from that of the Pizhder plain. The two are connected by an easy pony-road through the Darband-i-Ramakhan.

The *Pizhder plain* forms a wide semicircular amphitheatre, bounded by the Zernakui massif on the north and by the Kandil Dagh along the Persian boundary on the north and east. This part of the Kandil Dagh rises to summits between 9,000 and 11,000 feet and in the north is faced with great black precipices of snow-capped rock. The many streams which water the frontier range have wild, thickly wooded upper valleys, often with precipitous rocky walls, but as they enter the plain their beds are cut between steep earthen or conglomerate banks. Qala Dizeh, the chief village of the plain, is the winter headquarters of a section of the Mangur Kurds, who cross by little-known tracks to Sardasht and to the Vasneh grazing-grounds beyond the Persian border in summer. The lower slopes of the

frontier range, particularly on the Persian side, are fairly well wooded, but the cultivated Pizhder plain has been cleared of trees by indiscriminate felling.

The chief passes from north to south are: the Vasneh, south of a long impassable section of the frontier wall, near boundary pillar CXIV; the Zinu Malimos (6,750 ft.) near pillar CX; the easy Kanirash pass, slightly lower, the main route to Sardasht; the Zinu-i-Augau-Gir (7,000 ft.) near pillar CVII; and the Zinu Khan Ahmad (5,780 ft.), over a shoulder near the Little Zab. A difficult path just passable for animals leads up the Cham-i-Garfen past Shahidan and crosses a col into the Rubar-i-Chamrakhan valley by which Ruwandiz can be reached; but the Balik Kurds to the north have never encouraged trepassers from the south.

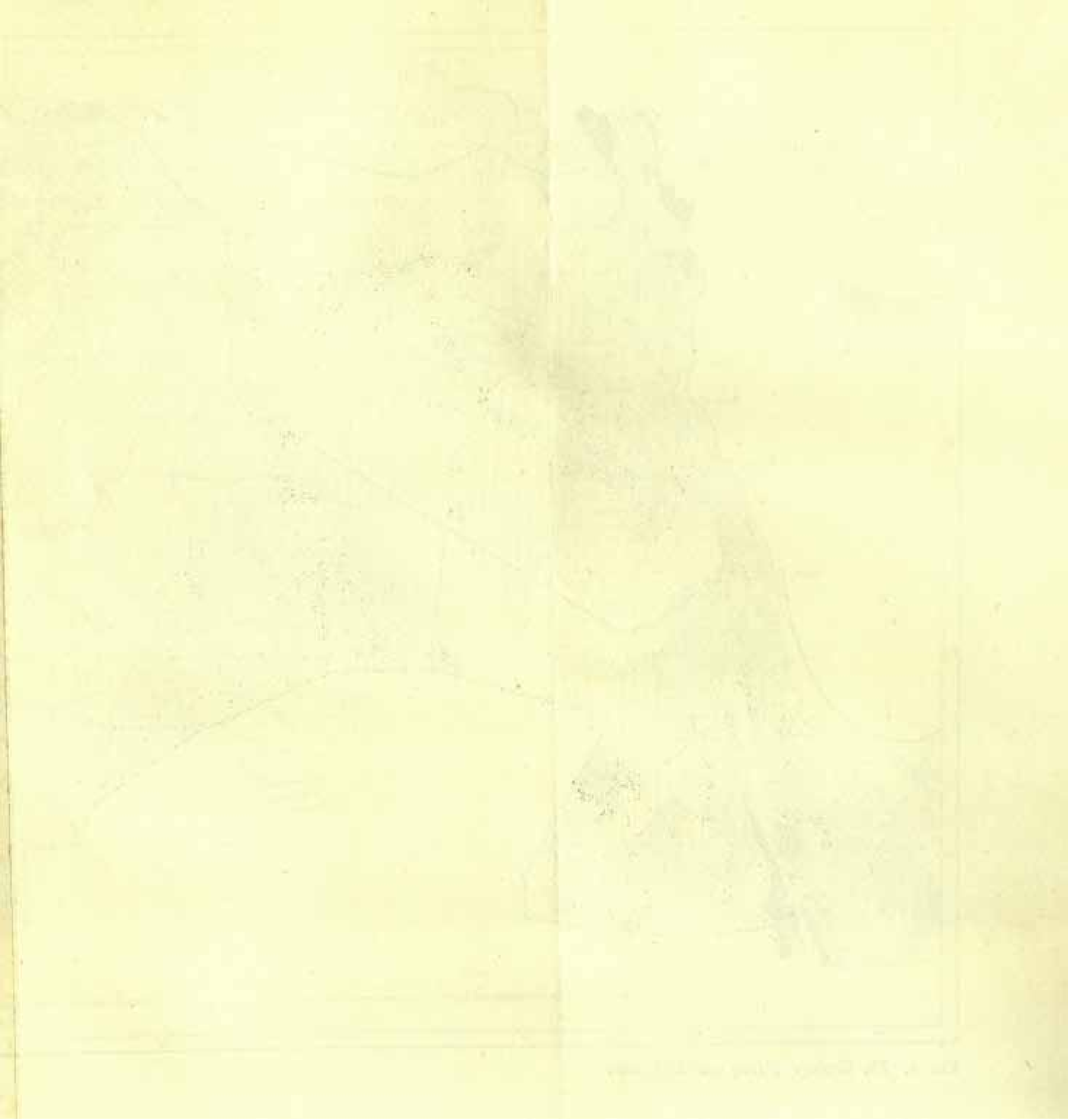
The basin of the Qala Chulan is much better wooded than the rest of the region, and there are some fine planes, walnut-trees, poplars, willows, sumach, and sycamore. The valleys are often grassy and undulating, but sometimes steep and narrow; there are terraced vineyards and barley, tobacco, and some cotton and millet are grown.

(c) *The Mountain Basin of the Great Zab in Iraq* (fig. 27)

The most impressive feature of the Great Zab in Kurdistan is the great trough which follows the direction of the ranges from south-east of Ruwandiz to south of Amadia. All the drainage north-east of this feature as far as the Persian boundary and from the difficult Hakâri country north of the Turkish border is collected by four main rivers and poured through gorges into the trough: the Great Zab itself, which enters Iraq territory north of Amadia; the Rubar-i-Shin (Şemdinan Su), with its tributaries the Marek, Artush, Oramar, and Şemdinan; the Rukuchuk, with its two main feeders the Rubar-i-Haji Beg and Barasgird; and the Rubar-i-Ruwandiz, with its many affluents in the east.

The waters of all these snow-fed rivers find a single breach in the last great barrier, the Berat Dagh, in which they carve the mighty Bekhme gorge between Aqra and Ruwandiz. Thereafter, though there are occasional low folded hills south of Aqra, much of the land is buried under alluvium (p. 95), and the two parallel ranges, the Khati Dagh and Sefin Dagh, whose extensions in the basins of the Little Zab and Diyala have already been described, end before the course of the Great Zab is reached and form no obstacle.

The outer ranges west of the gorge are mostly drained southwards by the two rivers, Gomel Su and Khazir Su, which unite in the



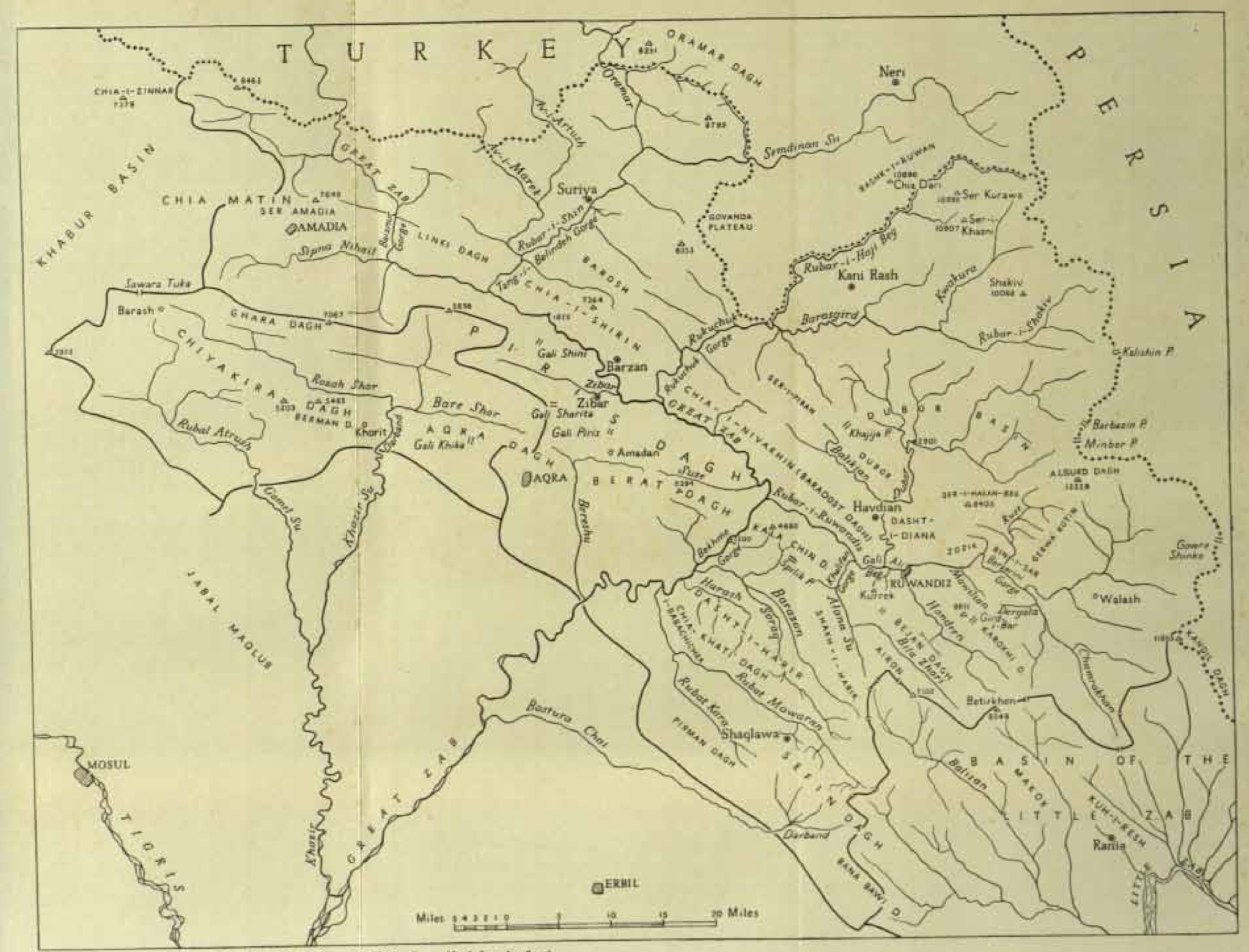


FIG. 27. *The Mountain Basin of the Great Zab in Iraq (heights in feet)*

Ruwandiz, the country to the south will be described in greater detail than elsewhere.

From south-west to north-east the chief barrier ranges are the Sefin Dagh, the Khati Dagh, the Shakh-i-Harir, the Bejan Dagh, the Karokhi Dagh, and the high spurs of the Kandil Dagh.

The Sefin Dagh (Shakh-i-Sefin) rises from the fertile plain north of the Bastura Chai with fairly gentle slopes for the first 10 miles. It is bounded on the north by the Rubat Mawaran stream, which breaks through an outlier, the Chia-i-Babachichek (3,281 ft.), to join the Rubat Kara. Between these two streams the Sefin Dagh rises rapidly to nearly 4,000 feet. From here, with one low col below 3,000 feet, it forms a long narrow ridge 30 miles long, one-third of which is drained by tributaries of the Little Zab south-eastwards. A parallel ridge on the south-west flank rising to over 4,000 feet has been almost separated from the main ridge by streams draining north-west and south-east, and is divided into two equal parts, the Pirman Dagh and Bana Bawi Dagh, though the central portion is drained by torrents which force a single passage (*darband*) between them to join the Bastura Chai.

The range is of limestone, with shale outcrops, possibly coal-bearing, in the east. Its slopes are well wooded; plane, mulberry, and walnut trees grow to great size on the lower slopes and in sheltered valleys, and there are hedgerows and poplar plantations near the villages. On the north-eastern slopes abundant water for irrigation is provided by springs; wheat, barley, *mash*, *arzan*, cotton, and sesame are grown where space is available, also some tobacco. There are apple and pear trees, poplar plantations, and many vineyards near Shaqlawa. The crest and higher slopes of the range are grassy in summer.

The Khati Dagh. East of Shaqlawa there are red sandstone hills, through which streams from the north-eastern slopes of the Sefin Dagh cut gaps to reach the Rubat Mawaran. The well-wooded Khati Dagh (3,600 ft.) north-east of the river is parallel to the Sefin Dagh. It includes the Chia-i-Babachichek at its north-western end, where it approaches the Great Zab. To the south-east it is connected by a narrow limestone ridge of 3,000 feet to the southern end of the Shakh-i-Harir; here its northern slopes are drained by the Soraq stream, which cuts a narrow passage to the Harir plain.

The *Harir Plain*, or Dasht-i-Harir, is a wedge-shaped piece of country to the north-east of the Khati Dagh, the Great Zab forming its base and the Shakh-i-Harir the eastern side. Five miles broad near the base, it extends south-eastwards for about 20 miles until it is

blocked by the junction of the Khati Dagh and Shakh-i-Harir. It is slightly elevated, open and undulating, fertile, well watered, and intensively cultivated. Its principal streams are the Av-i-Harash draining the eastern Babachichek hills, the Soraq, and the Barazan, which rises from a col on the Shakh-i-Harir and drains its western slopes.

The Shakh-i-Harir (Harir Dagh) and Bejan Dagh are two broad folds enclosing the Alana Su which then cuts through the Bejan Dagh at the Khalifan gorge to join the Rubar-i-Ruwandiz. North-westwards, beyond the gorge, the two folds are pressed together to form the Kala Chin Dagh, the fold of the Shakh-i-Harir being deeply dissected by a tributary of the Barazan; these two circumstances combine to form the natural route up to the Spilik pass (3,600 ft.) which leads to the Alana Su, the Khalifan gorge, and Ruwandiz.

The *Shakh-i-Harir* becomes a separate range south-east of the Spilik pass and continues south-south-east for 16 miles, rocky but well wooded, with precipitous south-western flanks where it falls nearly 3,000 feet to the Harir plain and the Barazan stream; the north-eastern slopes are less steep, falling 1,000 feet in a mile, but the ridge is difficult to cross even on foot, being over 5,000 feet above sea-level. Near the watershed of the Little Zab it loses height, and there are easy cols of about 4,000 feet, one at the head of the narrow wooded valley of the Alana Su, the other between the Barazan and Balisan valleys to the Rania plain (p. 101).

North of the Spilik pass the *Bejan Dagh* is continued by the Kala Chin and by the Berat Dagh beyond the Bekhme gorge. It is cut through at the Khalifan gorge by the Alana Su. Immediately to the south-east it rises precipitously to Shakh-i-Kurrek (7,457 ft.) and other jagged peaks; it extends south-east for 16 miles as far as the massifs of Arasin (8,298 ft.) and Betirkhen (8,249 ft.), the latter on the Little Zab watershed. On the south-west it is separated from the main Alana valley by the precipitous ridge of Airon (6,000–7,000 ft.), which is severed from the Bejan Dagh by the deep Bila Zhori trench; the Airon ridge itself forms the Little Zab watershed and, after joining the Bejan Dagh, continues south-eastwards as the Makok Dagh (p. 101).

The Bejan Dagh is crossed by a rough pass south of Ruwandiz (fig. 27). On the north the gorge of Gali Ali Beg, 1,500 to 3,000 feet deep, has been carved out of its limestone slopes by the Rubar-i-Ruwandiz in its efforts to reach the lower level of the Bekhme gorge of the Zab; the nearly horizontal limestone strata end with precipitous

walls. A full-grown underground tributary pours out of the limestone rocks of the Bekhari defile, 2 miles below Ruwandiz. Near Gerwa Zhori the Bejan wall has been cut away by torrent drainage, and at several places there are beginnings of similar action. The north-eastern slopes shelve to a bare plateau which narrows to a tongue between the junction of the Handren tributary and the Rubar-i-Ruwandiz, and on this tongue stands the town of Ruwandiz, difficult of approach from all sides except from the slopes behind (photo. 213). There are terraced fields and vineyards in the fertile wooded Handren valley to the east, but generally the lower reaches of the rivers are cut in deep gorges. Villages on the mountain slopes are often terraced, the houses rising above one another.

The *Karokhi Dagh* is a limestone block extending south-east from Ruwandiz to the Little Zab watershed, a distance of about 13 miles. It is divided by the Gird-i-Bar pass into two 8,000-foot crests; its north-eastern flanks have been deeply dissected by torrent drainage, particularly by the Dergala and Mawilian streams, thus forming a useful route from Ruwandiz to the Persian frontier which avoids the difficult Berserini gorge.

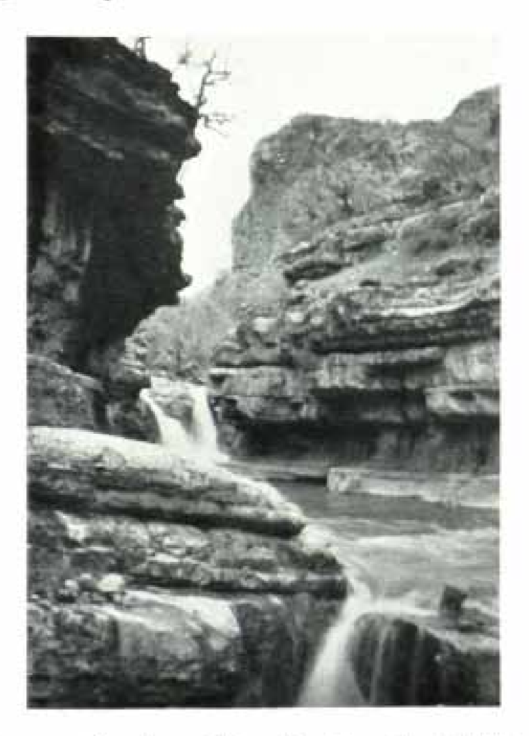
Beyond the Rubar-i-Chamrakhan the formation changes, the more regular folds being overlain by great slabs of rock which build up the Kandil Dagh along the Persian boundary and its western spurs to heights of 10,000 and 11,000 feet. Beneath this cap of harder rock the limestone projects as undulating plateaux more open than usual, but cut deeply by occasional ravines, particularly near the Rubar-i-Ruwandiz. Villages of Balik Kurds nestle in these ravines surrounded by a fair amount of cultivation, and in general the valleys and their gentler slopes are well wooded with dwarf oak, blackberry, walnut trees, and wild vines. There is a route by Walash to the upper Chamrakhan by which pack animals can reach Qala Dizeh on the Little Zab with some difficulty (p. 102).

The Outer Barrier north-west of the Bekhme Gorge

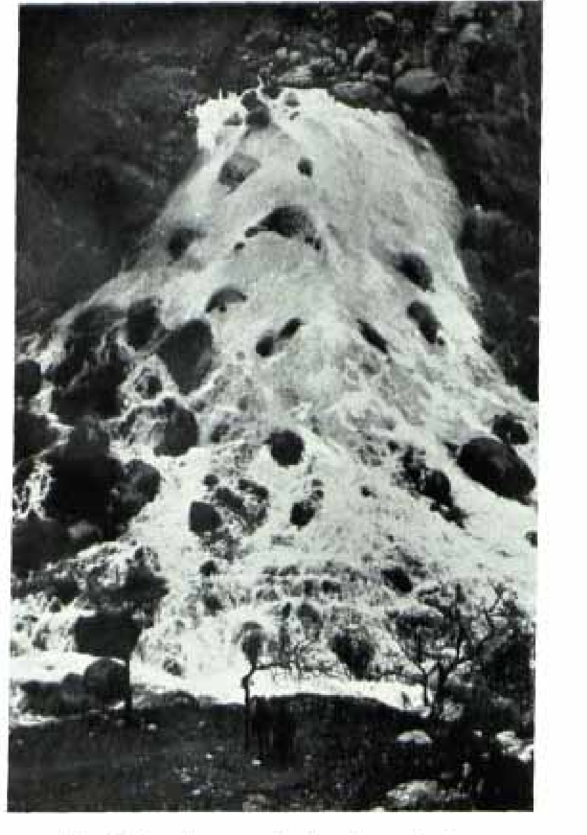
This block of country is composed of two main chains separated by the Rozah Shor and Bare Shor tributaries of the Khazir Su. The outermost has three parts, the Chiyakira Dagh, Aqra Dagh, and Berat Dagh, separated by the Khazir Su and the Bereshu. North of the Rozah Shor and Bare Shor are the double-ridged Ghara Dagh and Piris Dagh, both of which have been eroded by drainage parallel to their strike. They are most easily described from west to east.

The *Chiyakira Dagh* extends east-south-east for 28 miles from the

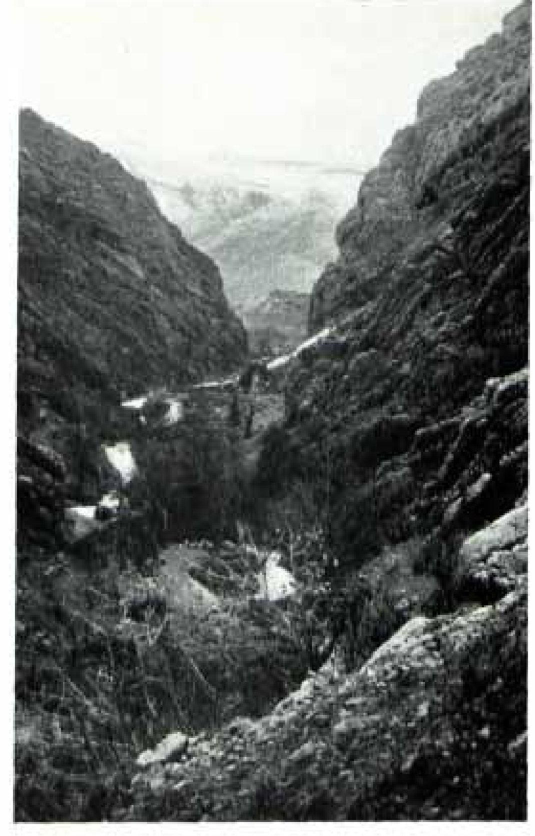
41. *Junction of the Alana Su with the Rubar-i-Ruwandiz*



42. *The upper Surriya rapids on the Alana Su, Khalifan gorge*



43. *The Bekhari stream issuing from the limestone near Ruwandiz*



44. *Bekhari defile. Old approach to Ruwandiz. Shakh-i-Kurrek (Bejan Dagh), 7,457 feet, in the distance*

region of the Sawara Tuka pass. The deep narrow trough of the Rozah Shor at the lower end of its valley separates this range, at its eastern end, from the southern outliers of the Ghara Dagh. It is from 3 to 7 miles wide and varies between 4,000 and 5,500 feet above sea-level, the highest peak (Berman Dagh) being 5,485 feet. The mountains are deeply dissected by streams draining into the Rozah Shor, to the north, and to the Gomel Su in the south-west, so that the spurs are mostly cliff-sided, with wide shelves, saddles, and gently tilted roofs and plateaux. The Berman Dagh in the east is the only long high ridge; it has gentle slopes to the north, but the southern face is exceedingly steep. The range is crossed northward by a mule track from Barash, a village on a head-stream of the Rubal Atrush (or upper Gomel Su), while another leads over the Berman ridge at 4,000 feet, from the village of Khorit to the defile of the Rozah Shor, beyond which it becomes a foot-track. The Khazir forms a winding and inaccessible defile at the eastern end of the range.

The *Aqra Dagh* continues the line to the east of the Khazir at a height of 3,000 feet, gradually rising and forming a very definite ridge of 4,000 feet with summits of 4,500 feet and 5,000 feet (Pika Ser, north of Aqra town) farther east. The range is 18 miles long and 2 or 3 miles wide, and is less complex than Chiyakira Dagh; its slopes form a gaunt rocky wall broken only by a defile leading to the Gali Khika pass (3,630 ft.), from which a wild foot-track leads down into the valley of the Bare Shor. The town of Aqra lies partly on a col to the south of the range. The Bereshu river has eaten its way into the mountains in another gorge about 4 miles east of Aqra, between the Aqra Dagh and Berat Dagh.

The *Berat Dagh* on the west is a wide, gently sloping plateau of 3,000 feet, above which there are summits of 4,000 feet; it gradually rises eastward, first to 4,000 and then 5,000 feet, to form a high rocky wall with summits of 4,765 and 5,394 feet. In the west it is crossed by two tracks from the south which meet at Amadan in the upper Bereshu valley. It is about 2 miles wide and stretches eastward for 17 miles from the Bereshu gorge, ending abruptly with an almost sheer face of black rock on the western side of the great Bekhme gorge.

The *Ghara Dagh* forms a long narrow range which extends east-south-east for 20 miles. It divides the waters which flow north into the Sipna Nihail tributary of the Zab from those which flow south into the Khazir, and is flanked by outlying parallel ridges on either side. The main ridge, from 2 to 3 miles wide, is from 5,000 to 7,000

feet above sea-level. The crest surmounts a precipitous wall above the northern slopes. A parallel rocky ridge on the north, between 6,000 and 7,000 feet, is joined to it at its western end and is intersected by rivers flowing northwards in deep gorges. The formation suggests that the ridges were once part of a plateau which has since been dissected by torrents. The slopes are wooded; vines and tobacco are grown on terraces near sheltered villages.

The *Piris Dagh* is an eastern continuation of the Ghara Dagh, but it has been eroded deeply along its original crest by the Zibar tributary of the Zab and by tributaries of the Khazir, which have eaten into the softer rocks, leaving two main ridges still standing at about 6,000 feet. The northern ridge, known as Cha Keri on the west, rises south of the elbow of the Zab and extends east from the northern Ghara Dagh for 21 miles. At Sar-i-Sura the ridge broadens, and its northern slopes fall steeply for 4,000 feet to the Zab. South-west of Cha Keri there is a col of 3,500–4,000 feet between it and the Ghara Dagh. East of Sar-i-Sura the ridge is crossed by the Gali Shini pass (3,155 ft.), and it ends just north of Zibar.

The southern ridge extends for 30 miles in an east-south-easterly direction, south of the Zibar valley and the trough of the Zab. On the west its narrow crest, between 4,000 and 5,000 feet, sends out short rounded spurs; farther south-east these lie parallel with the range, enclosing narrow valleys. North-north-east of Aqra the ridge is crossed by the Gali Sharita pass, at over 4,750 feet. Here it forms a sinuous watershed with summits of over 5,000 feet, but it broadens eastwards. The northern slopes are less steep than the southern. A track from Amadan to Zibar crosses the Gali Piris pass east of Ser-i-Piris. The ridge ends with a rocky summit of 5,700 feet. The lower slopes on both sides are wooded.

The two ridges of the Piris Dagh are connected by a jagged crest 4 miles long with summits of 6,000 feet at the head of the Zibar valley. With the Ghara Dagh they enclose the head-waters of the Khazir in a high fan-shaped basin from which the river passes southwards in a defile between the southern ridges of the Ghara Dagh and of the Piris Dagh, and their outliers. The Bare Shor tributary of the Khazir, the head-streams of the Bereshu, and the Suse stream flowing east into the Zab, all drain the southern slopes of the Piris Dagh.

The Highlands north-east of the Great Zab Trough

The complex topography north-east of the Zab trough is best understood by a reference to fig. 15, where the structure and drainage



45. *The gorge of Gali Ali Beg immediately below Ruwandiz*



46. *Old Turkish mule-road in the gorge of Gali Ali Beg*



47. *Bejan Dagh from Ruwandiz*



48. *Chia-i-Nivakhin and Dasht-i-Diana from Ruwandiz*

north-east of the 'nappe front' are seen to be clearly different from those of the more regularly folded mountains to the south-west. The reason is that the thick layer or 'nappe' of extraneous rocks covers the original strata, and only those parts that are clear of the nappe show the more regular grain of the country, where the strike is already beginning to change direction from north-west to west. The country towards the frontier away from the main valleys is not well known, but it appears that the Rubar-i-Ruwandiz leaves the nappe zone just above the junction with the Chamrakhan, while the Barasgird and Haji Beg leave it about 8 miles above their union. Almost the whole of the Rubar-i-Shin and upper Zab basins within Iraq boundaries are clear of extraneous rocks. For the purposes of description the region is therefore divided into two main blocks, south-east and north-west of the Rukuchuk.

(*a*) *The South-eastern Block.* The Chia-i-Nivakhin or Baradost Dagh is the only normal limestone range in this area; it reaches from the Rubar-i-Ruwandiz opposite the town of Ruwandiz to the Rukuchuk, a distance of about 25 miles. It is very similar to the Karokhi Dagh (p. 106), and is part of the same fold cut through by the Ruwandiz river and its right-bank tributary, the lower Balikian. It forms a long ridge with a precipitous crest generally over 5,000 feet, rising to the highest point (6,809 ft.) in the middle. The north-western end has been completely severed from the main range by a deep cliff-sided ravine and has been deeply dissected by drainage to the Zab. A difficult mule-track crosses the main ridge from Havdian near its south-east end, but otherwise the crest is inaccessible except on foot. Both slopes are steep, the south-western frequently dropping with sheer cliffs to the Ruwandiz and Zab rivers. Except for scrub on the lower slopes, the range is mostly bare. There are a number of natural caves in the limestone, some with rather lurid reputations, the largest being near Havdian. Along the north-eastern foot of the range drainage is collected in a parallel trough, more than two-thirds of which is occupied by the Balikian tributary of the Rubar-i-Ruwandiz, which cuts a deep gash in the mountain side near the confluence 3 miles below Ruwandiz town; but for almost the whole of its course this trough offers an easy line of communication between Ruwandiz and the Rukuchuk. Its north-western end is drained by a steep narrow ravine to the Rukuchuk, and a small central section has been captured by drainage to the Zab.

Immediately north of Ruwandiz and east of the Balikian is an open plain, the Dasht-i-Diana, 5 miles by 4, only 2,000 feet above sea-level,

where tobacco, oats, barley, and vines are grown by the townsmen of Ruwandiz. It is an unusual feature among these mountains, and forms the only ground sufficiently open for a small air landing-ground. Its northern end is crossed by the Rubar-i-Dubor, which joins the Balikian after draining an extensive fan-shaped basin cut out of the covering rocks of the nappe zone. The region here was once a tilted plateau, mostly from 4,000 to 6,000 feet above sea-level, but has apparently been fractured along the east–west line of the Barasgird valley on the north, and eroded by drainage to the Dubor from all directions. The northern watershed of the Dubor is therefore within 2 miles of the Barasgird, and several easy natural routes with good water-supply lead up the Dubor tributaries, with steep, short, winding descents to the Barasgird valley or, in the east, with sharp zigzag ascents to the Kalishin, Barbazin, or Minber passes over the Persian boundary.

None of the mountains in the nappe zone exhibit the fundamental pattern of the more southerly ranges already described, except on the west of the Dubor basin where Ser-i-Piran (6,231 ft.) has been almost isolated from the Dubor summit to the south-east. An easy mule-path passes between them over the Khajija pass (*c.* 4,400 ft.) into western tributaries of the Dubor. Many of the slopes are well wooded and north of the Khajija pass the streams are lined with thick woods of oak and plane-trees growing up to 20 or 30 feet high.

South-east of the Dubor basin the mountains form a confused knot, with the limestone Zozik Dagh and Bin-i-Sar forming the northern wall of the Berserini gorge. The nappe covering piles up against this range, but has been deeply eroded by the Rust stream and its tributary ravines, to form a secluded fertile amphitheatre harbouring many villages, shut in on the south by the Bin-i-Sar and enclosed on the north and east by long, narrow, jagged buttresses descending from the massif of snow-covered Algurd Dagh (12,229 ft.) close to the Persian border. The northern buttress ends with Ser-i-Hasan Beg (8,405 ft.) on the west; Gerwa Kotin (9,887 ft.) is the southern end of the eastern buttress. The amphitheatre can only be reached by difficult tracks and forms an easily defended sanctuary, where many Kurds sought refuge during the Russian invasion in 1916.

Little is known of the country between the upper Barasgird (Rubar-i-Shakiv) and the Haji Beg. The mountains form two long forbidding south-westerly spurs separated by the Kwakura, under deep snow in winter, projecting from and exceeding the height of the Persian watershed. Several summits are over 9,000 feet, while each spur

49. *Valley of the Haji Beg, early February*



50. *Kani Rash, Baradost country, north of the Barasgird, early February*

51. *Bebadi village, 2 miles west of Amadia*



52. *The Amadia pass at Selav*

rises to over 10,000 feet at its highest points (Shakiv, 10,068 ft.; Ser-i-Khazni, 10,807 ft.; Ser Kurawa, 10,999 ft.). There are easy but rough routes along the Shakiv, Kwakura, and Haji Beg valleys which are all enclosed, with lower slopes thickly wooded, and are very liable to flood-torrents during the melting of the snows. The spur between the Kwakura and the Haji Beg ends rather abruptly some 8 miles above their junction, and the tongue of lowland here forms a fertile and well-cultivated plain with the village of Kani Rash overlooking it on the north. It is over this tongue and through Kani Rash that the old Turkish mule-road from Ruwandiz ran to Neri in the upper Semdinan valley.

The Rubar-i-Haji Beg forms the boundary with Turkey. In its lower reaches it is not a difficult river to cross, but it is very enclosed higher up, and below the junction of the Barasgird and Haji Beg the Rukuchuk cuts a deep impenetrable gorge through the limestone folds to join the Great Zab.

(*b*) *The North-western Block.* Much less is known of the country north-west of the Rukuchuk than of that to the south-east, but for the greater part it follows a well-marked pattern. The Chia-i-Shirin, between the Rukuchuk gorge and the Tang-i-Belindeh gorge of the Rubar-i-Shin, and the Linki Dagh between the Tang-i-Belindeh and Baiznur gorge of the Great Zab, are clearly continuations of the Baradost Dagh to the south-east. Moreover, the Sipna Nihail tributary continues the Zab trough to the west, so that the Ser Amadia or Chia Matin, on whose lower slopes stands Amadia, is certainly a continuation of the Linki Dagh. All display much the same characteristics, rising directly from the gorges cut through them to long precipitous ridge-crests over 6,000 feet with occasional peaks over 7,000 feet, the slopes falling steeply to troughs on either side. But the strike gradually changes, and north of Amadia it is almost due west; also the trough of the Great Zab broadens and is less deep above the junction of the Rubar-i-Shin than below the Rukuchuk, so that it becomes more accessible and more habitable. Though most of the lower slopes of the Zab valley below the Rukuchuk junction are too steep or too rocky for cultivation, above the junction fans of fertile soil from gully-mouths become more common; at one such comparatively fertile spot the large village of Barzan, ruled by truculent aghas (p. 377), stands a little upstream of the right-bank tributary, the Zibar. Above the Rubar-i-Shin junction the change is even more marked; the southern lower slopes of the Linki Dagh are well wooded with oak of all sizes, sycamore, and ash. Mulberry trees are common and

there are cultivated terraces of rice and wheat. The Sipna Nihail valley is broader still, more fertile, better watered, and generally well cultivated, though often swampy near the river banks. Amadia, on an almost detached plateau, is a small town among a dozen or more

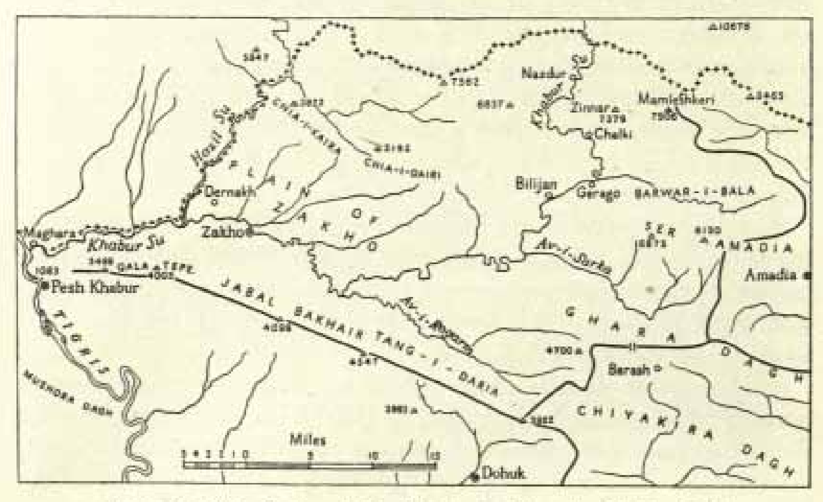


FIG. 28. *The Basin of the Khabur in Iraq (heights in feet)*

villages, mostly on the lower slopes and spurs of Ser Amadia, or across the valley to the south; a fair amount of rice, millet, vines, and tobacco are grown on terraces. The Sipna Nihail is perennial, varying at different seasons from 10 to 80 yards wide near its confluence with the Zab, and 18 inches deep in June. Amadia is easily accessible from the Khabur on the west.

Behind this chain of ridges from the Chia-i-Shirin to the Ser Amadia there is a parallel trough drained by tributaries to the gorges of the Rukuchuk, Rubar-i-Shin, or Zab. Then the ground rises to a second ridge, cut through by these same gorges, after which the ridges, though maintaining predominantly their direction parallel to the strike, become more closely packed and confused. Occasionally, where the slopes become more gentle, there is a cluster of Kurdish villages. The valleys are often wooded with dwarf oak, poplar, maple, and scrub; wheat is grown wherever possible, and there are small vineyards and orchards.

The Oramar and Şemdinan rivers have the greater part of their courses in Turkish territory. They unite about 10 miles inside the Iraq frontier to form the Rubar-i-Shin, which on its passage to the

Zab collects the drainage from comparatively open valleys on either side. Below the small village of Suriya, about 13 miles from the Zab, its course is through a continuous gorge. Four and a half miles above the junction it is joined by the combined waters of the Marek and Artush, both of which rise in Turkish territory.

Through such country movement is difficult. The Chia-i-Shirin is crossed by one difficult mule-track behind Barzan; the Linki Dagh is only passable on foot; the gorges are almost impenetrable. Thus the seasonal migration of certain Kurdish tribes with their flocks from higher to lower ground in autumn and in the opposite direction in spring is forced along definite routes; the settled tribes usually combine at these seasons for defence or profit under chieftains of influence, who occupy points of vantage on the way.

(*d*) *The Khabur Basin in Iraq* (fig. 28)

The topography of the small part of the Khabur basin within Iraqi boundaries is much less impressive than that of the Great Zab; but, like the latter, it is the direct consequence of structure, simple in broad outline, but seemingly complicated in detail. Both the Khabur and its chief tributary, the Hazil Su, rise in Turkish territory, where they collect the waters of many snow-fed affluents before entering Iraq almost at right angles to the strike of the folded mountains. The frontier ranges are cut through in gorges, but both rivers are checked by the hard unbroken range of Jabal Bakhair, which, like its extension farther east—the Chiyakira, Aqra, and Berat Daghs—deflects the waters along the strike. The Khabur joins the Hazil Su at Dernakh below the village of Zakho, and as one river they enter the Tigris at Maghara above Pesh Khabur.

Thus the region may be resolved into the following strips from south to north, each running from east to west parallel to the strike:

(*a*) the Jabal Bakhair, westward continuation of the Chiyakira Dagh;

(*b*) the Ghara Dagh, which plunges beneath the plain of Zakho;

(*c*) the depression of the Av-i-Sarka, open to the Sipna Nihail and Amadia on the east, and widening the plain of Zakho on the west;

(*d*) the western end of Ser Amadia, separated by the Khabur from the single ridge of Chia-i-Dairi and Chia-i-Kaira;

(*e*) the frontier ranges, which, though complicated by erosion, still show the same general east–west trend.

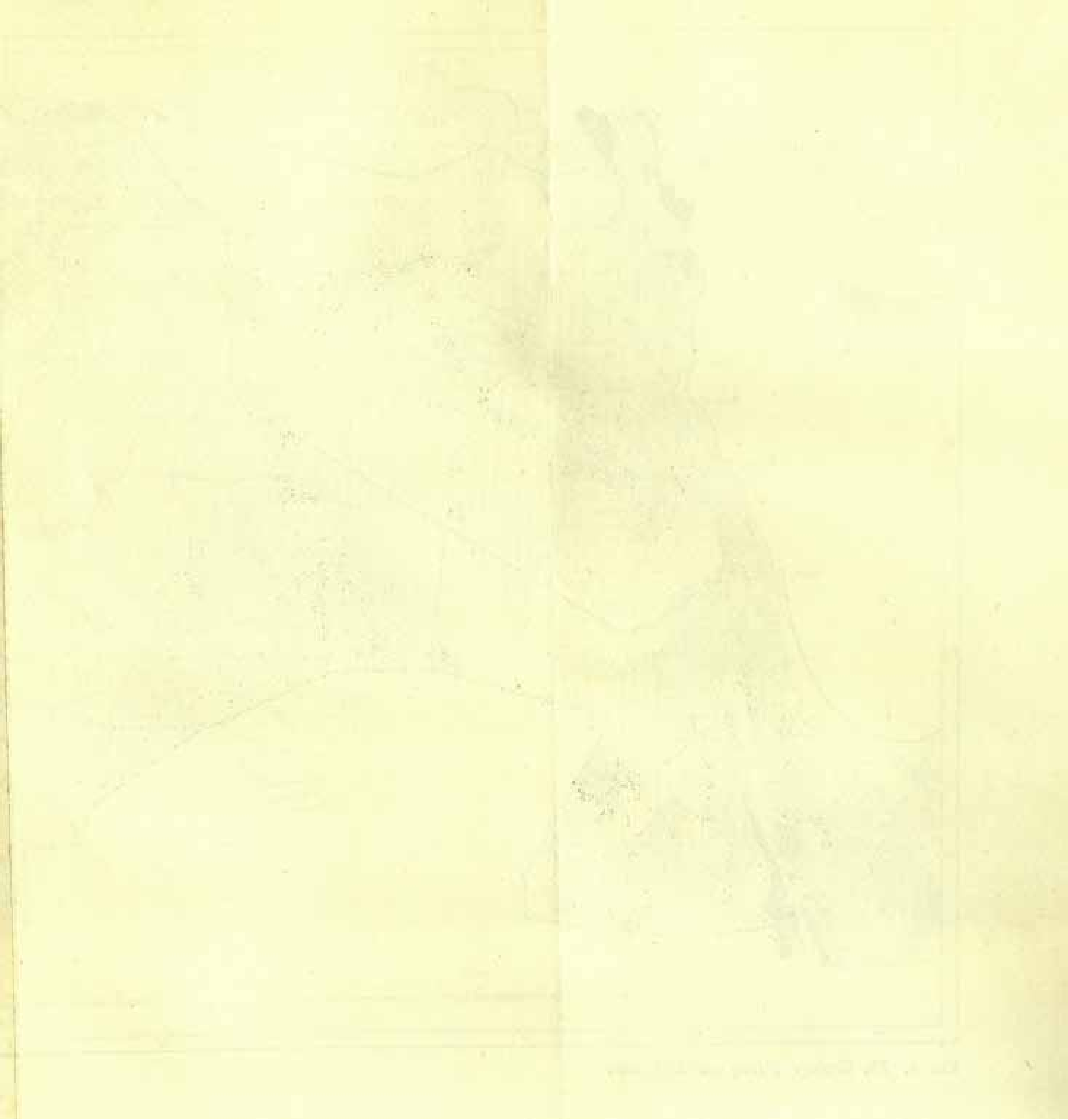
The chief difference between this region and the basin of the Great

Zab is that one range, the Ghara Dagh, plunges downwards after entering the Khabur basin, so that the Khabur is deflected round it instead of passing through it, its place and that of the Av-i-Sarka trough being taken on the west by the broad plain of Zakho which greatly increases accessibility.

The Khabur enters Iraq at 37° 22′ N., 43° 10′ E., and for 14 miles carves a winding course through the hard calcareous rocks of the frontier ranges. The gorge walls rise steeply from the river bed and the current is swift. Avalanches sweep both sides in winter and early spring; and from February to June the river can only be crossed by wicker bridges at two places, Nazdur and Chalki, or by raft. The mountain crests east of the gorge are nearly 4,000 feet above the bed (*c.* 2,500 ft.), and two summits exceed 7,000 feet above sea-level (Mamleshkeri, 7,906 ft.; Zinnar, 7,379 ft.); nomad herdsmen can only cross in summer. The frontier ranges between the Khabur and the Hazil are not much easier, but there are more tracks.

The Khabur valley opens out for a short distance about 4 miles below Chalki where a stream enters from the east after draining the wooded Barwar-i-Bala depression which leads to the Great Zab above the Baiznur gorge; but it soon closes in at the Gerago–Bilijan defile by which it passes the western end of the Ser Amadia. Then the landscape opens out again as the river picks up the Av-i-Sarka which enters from a fertile well-wooded valley to the east, 5 to 8 miles wide. The Khabur is now deflected westwards by the declining folds of the Ghara Dagh, biting into its northern foot and cutting off a low foothill. Fifteen miles west of the Av-i-Sarka the Av-i-Rogarm enters the left bank and the Khabur meets the Jabal Bakhair. The landscape opens out on the right bank to the broad treeless but grassy plain of Zakho, 5 to 10 miles wide, with its rich clay soil and overlying gravel. The river's left bank is cut in the gravel scree of Jabal Bakhair's outlying spurs. Zakho stands on an island in the river, connected by bridges with the banks; an old high-pitched Turkish bridge spans the river just above the village; the Khabur widens and shoals below. Until June the current may be strong, but a month later the river may be forded at several places; at one ford about 4 miles below Zakho the river in the low-water season has been recorded as 80 yards wide, 2½ feet deep, and with a current of 3 miles an hour. In flood-time Zakho is the starting-point of rafts (kelleks) which pass down the Tigris to Mosul.

A number of torrent beds score the Zakho plain to the north; some are perennial. The Hazil, which forms the boundary, cuts across the



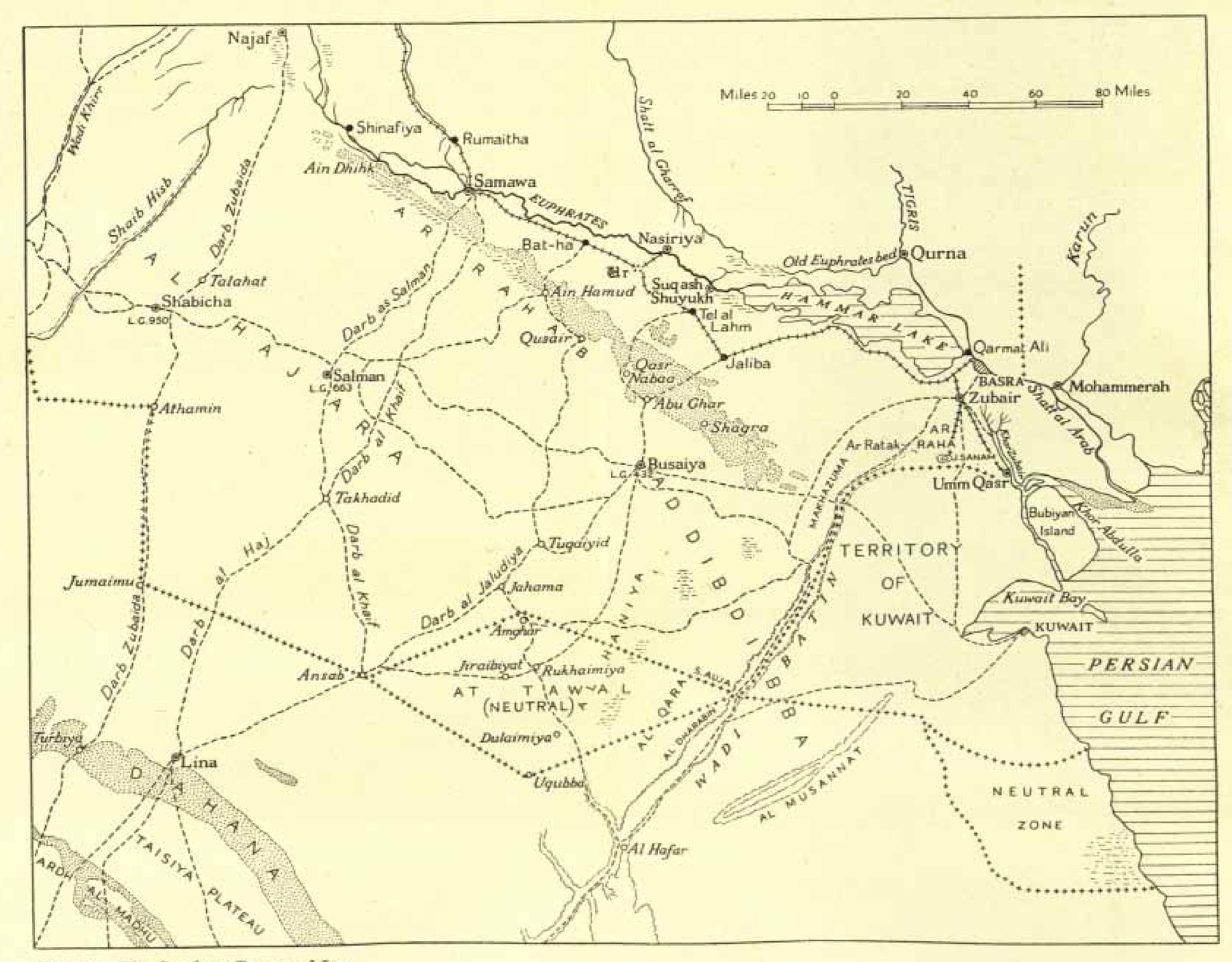


FIG. 29. *The Southern Deserts of Iraq*

mountains in a deep trench to the point where it enters the plain of Zakho, within 10 miles of its junction with the Khabur.

THE WESTERN AND SOUTHERN DESERTS OF IRAQ

These deserts are formed on the lower gentle slope of the Arabian plateau to the north of the sand-deserts of northern Arabia, the Great Nafud and its eastern extensions, the Dahana and the Ardh al Madhu. In the west they merge into the Hamad, the dry Syrian desert; in the north and north-east they are bounded by the Euphrates escarpment and delta; in the south-east and south they are continued across the political boundaries of Kuwait and Saudi Arabia.

The greater part of the deserts are composed of rocky steppe, of sandstone and limestones (Cretaceous and Eocene), and of later Tertiary covering layers (fig. 2), but there are differences of type and characteristics which permit regional classification as follows:

The Southern Deserts: (*a*) Ad Dibdibba
(*b*) Al Hajara
(*c*) The Euphrates sand-belt and Ar Rahab.

The Western Desert of Al Wadiyan.

The Sand-deserts of Northern Arabia[1]

Although the Great Nafud, Dahana, and Ardh al Madhu sand-deserts lie outside Iraq territory, a brief description of them is relevant, for their northern edge is the true physical frontier, and the characteristics of these sand-belts determine to some extent the main currents of movement within the desert boundaries of Iraq.

The Great Nafud is a wilderness of deep sand, 180 miles long from west to east, 140 miles broad from north to south, which separates the Hamad of Syria and Transjordan, with the western desert of Iraq, from the Jabal Shammar and Nejd regions of central Arabia. Towards its eastern end, about longitude 43°, the depth of sand decreases and its place is taken by long tongues of shallow sand-layers projecting eastwards over the hard stony desert. The most remarkable of these tongues are the Dahana and the Ardh al Madhu. The latter is a strip of sand averaging 8–10 miles in width and stretching for 100 miles to the Wadi Batin, which forms the most marked feature to the east and in its lower course separates the territory of Kuwait from Iraq. The Dahana sand-belt is about 11 miles wide where it leaves

[1] See folded map at end of the volume and fig. 29.

the Nafud. East of Lina it begins to curve south-eastwards and continues with a breadth averaging 15 miles, but sometimes much less, for a distance of 100 miles, roughly parallel to the Ardh al Madhu but converging with it eastwards. It reaches and crosses the Wadi Batin, smothering the depression with sand. Thereafter it sweeps round in a great curve, at first parallel to the shore of the Persian Gulf and 200 miles distant from it, and then bends round to the south-south-west till it joins the Ruba al Khali, 'the empty quarter' of southern Arabia. It has a total length of 700 miles.

Between the Nafud and the Wadi Batin the sands of the Dahana are neither deep nor difficult to cross; occasionally they are scarcely noticeable as a land feature; elsewhere the dunes, alined from east to west, are 50 feet high and 300 yards apart from crest to crest. In the Nafud, where the sand is deeper, horseshoe-shaped hollows (*falj*) have been scooped out of the sand, with depths of 150–200 feet. They vary in size from an acre to more than 100 acres, but all lie with the deepest part of the horseshoe towards the north-west, the direction of the prevailing wind. Travel is very slow and laborious in the Nafud because of these hollows, the accompanying dunes, and the soft texture of the sand.

In the rainy season these sand-deserts support a surprising amount of vegetation: there are large bushes of *ghadha* which serve as fuel, and tall succulent grasses which are so nourishing in spring that camel-herds become independent of water for weeks at a time. Thus at this season the nomads wander far into these sandy tracts, finding abundant fuel and pasture, and living on the milk of their camels. Moreover, though there are practically no wells within the dune areas, the margins of the belts are fairly well supplied with water.

The Wadi Batin

From Zubair, 10 miles south-west of Basra, the ground rises gently to the crest of the desert steppe known as Ar Raha, north of Kuwait territory, to the west of which is the mouth of the Wadi Batin, marked by two bluffs, Ar Ratak ash Shamali and Ar Ratak al Janubi. There is excellent grazing in Ar Raha during March. Where the Wadi Batin forms the boundary between Iraq and Kuwait (p. 2) it has steeply sloping banks, with a width of from 1 to 4 miles between crests on either side. The banks are cut by numerous small dry tributaries (*shaib*). A clayey loam covers the bottom of the depression and affords a fertile soil for grass and bushes.

This depression, which in its lower course is known as the Wadi

Batin, is a major feature of Arabia and can be traced right across the peninsula. It appears beyond the narrow belt of Dahana sands as the Wadi Rumma (or Rima), which curves westwards about latitude 26° as it passes through Nejd, and leads easily into the Hejaz by the Wadi Hamdh and its tributaries, thus linking up the central Arabian towns of Hail, Buraida, and Riyadh with both the Red Sea and the head of the Persian Gulf.

The Southern Deserts (fig. 29)

The two chief divisions of this region are the Dibdibba on the east and the Hajara on the west, roughly separated from each other by the ridge of Al Haniya, and each containing smaller areas with special characteristics.

Ad Dibdibba. This region stretches southward from the Hammar lake and Zubair to Hafar and the Musannat ridge (which lie south of the Arabian political boundaries with Iraq and Kuwait); it lies between Al Haniya on the west and the coastal tract of Kuwait on the east about 15 miles from the Persian Gulf.

The Dibdibba is a gently undulating steppe desert with a slightly sandy surface, thickly covered by low bushes, which give it a mottled appearance from the air. It has no notable natural features with the important exception of the Wadi Batin, and is almost without perennial wells, though rain-pools are invariably formed in winter and spring, at which seasons pasture is plentiful and movement easy. Some of these rain-fed depressions are extensive and last long into the summer months as *khors*.

The nature of the soil in the Dibdibba is best illustrated by its vegetation. The bitter *hamdh* (p. 188), which provides a salty addition to the camels' sweet (grass) grazing, is profuse as far west as the neighbourhood of the Haniya ridge, where it ends almost abruptly, its place being taken by *arfaj* (p. 187). The Arabs place the western border of the region along the line of deep wells, Abu Ghar, Busaiya, Tuqaiyid, Jahama, and Jiraibiyat to Uqubba, the southern apex of the diamond-shaped neutral territory (p. 3), though Al Haniya marks the geographical change in aspect and character. The neutral territory has come to be known as At Tawal or Tawal adh Dhafir. Formerly this term was applied by beduin to the line of deep wells extending across the 'diamond' from north to south (from Tuqaiyid through Rukhaimiya to Dulaimiya and Uqubba). It is now more often restricted to the grazing-grounds in the vicinity of the valuable wells which are in the neutral area.

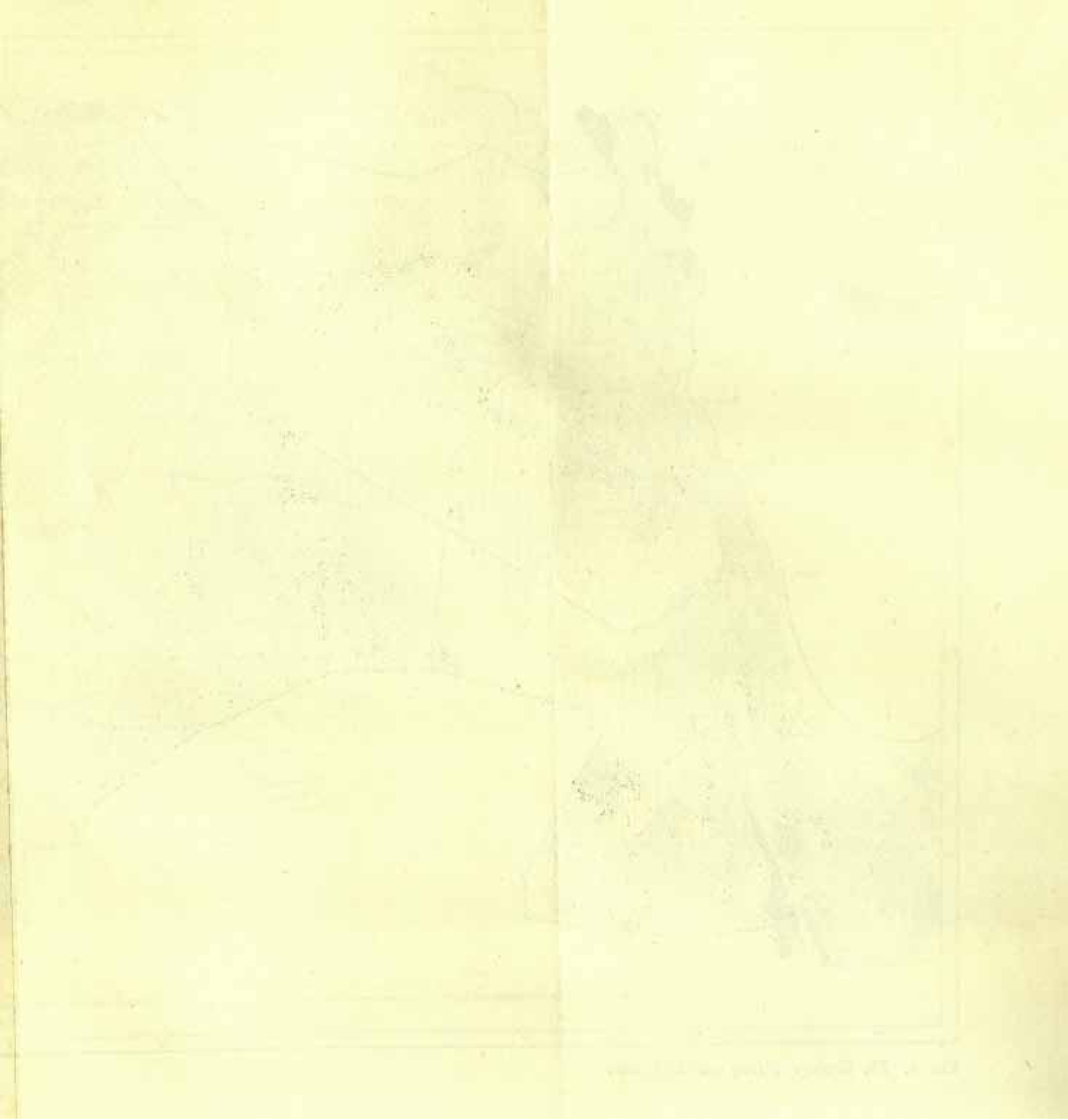
A small section of the Dibdibba region known as Al Qara or Qaraiat, in the south-east of the neutral territory and extending to the Dharabin ridge along the western edge of the Wadi Batin, has a soft, whitish, stoneless soil, a different surface from the rest, devoid of bushes but covered with tall feathery grasses known as *nissi* (*Aristida plumosa*).

Al Hajara. The remainder of the southern desert as far west as the Shaib Hisb is known as Al Hajara, 'the stony desert'. It is a region of stony flats, shallow grassy depressions, and a confusion of low limestone ridges. Rain-water collects in many of these depressions during winter to form rain-pools mostly of *khabra* type (p. 124). Numerous short rocky-sided wadis, the general trend of which is from south-west to north-east, cut the surface, but the streams, which occasionally flow in them after heavy rain, are prevented from reaching the Euphrates by a belt of sand, and dissipate in the mud flats bordering the inner edge of this belt.

Sharp stones and boulders cover parts of the Hajara region and are liable to lame camels and to damage motor tyres; but satisfactory routes for cars can be found with care and a little labour even in the bad areas, such as that between the police posts of Salman and Shabicha, and for 30 miles to the south of these places.

The Euphrates Sand-belt and Ar Rahab. Along the northern border of the Dibdibba and Hajara regions is a belt of sand varying in width from 5 to 15 miles and lying parallel to the Euphrates. As a continuous belt of undulating sand it begins about 10 miles south-west of Shinafiya and reaches south-eastwards almost to the Batin until held up by the ridges of Makhazuma and Matiyaha. North-west of Shinafiya it breaks up into low isolated dunes separated by hard ground; before reaching Makhazuma in the south it changes in character and becomes a level area of soft sand which banks up against every bush to form numerous small tufted hillocks.

The section of this belt which separates the Hajara from the Euphrates is fringed on the Hajara side, from Ain Dhihk to Qasr Nabaa, by a strip of soft, salt-impregnated soil (*sabkha*) about 3 miles across at its widest. This strip is known as Ar Rahab (occasionally as Al Jufra) and forms an obstacle to wheeled traffic additional to the sand-belt, especially in winter, when even a few hours' rain turns it into a slimy morass. But even without this handicap the sand-belt is impassable for ordinary wheeled traffic except where crossed by recognized routes. These are liable to become obscured by drift sand. Whether it would be passable elsewhere by tracked vehicles is not known.



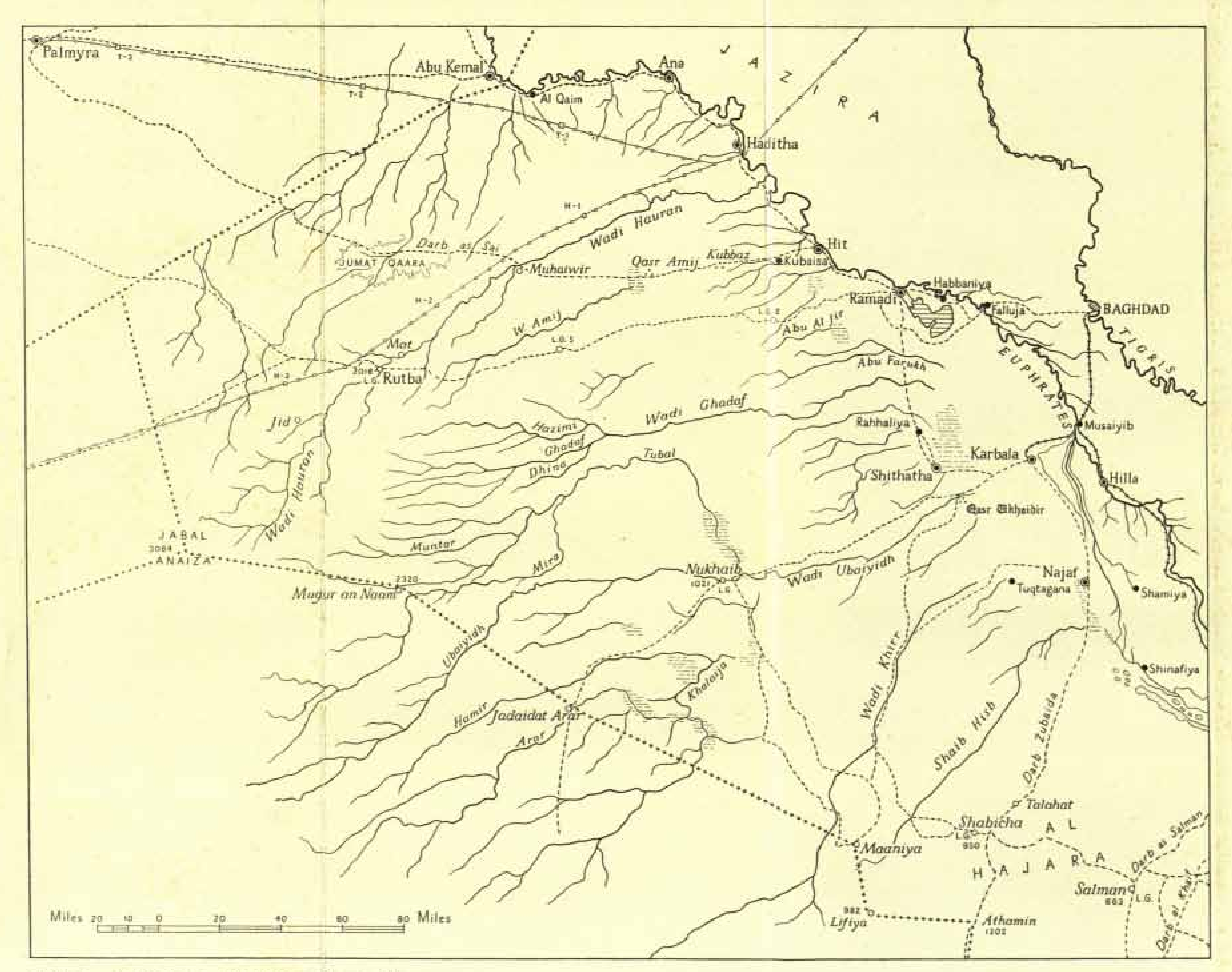


FIG. 30. *Al Wadiyan. The Western Desert of Iraq*

A line of perennial water-holes and shallow wells extends along the southern edge of Ar Rahab and into Dibdibba as far south as Shagra, though water is brackish in some of these wells. These occur regularly at intervals of from 7 to 10 miles and are believed by geologists to be fed by rainfall in the mountains of south-west Persia. The water-supply is sufficient for tribesmen to raise small crops and some primitive irrigation is practised; but the soil is too salty for extensive cultivation, a condition which probably is the cause of the water being slightly brackish.

Routes across the Hajara and Dibdibba. These southern deserts of Iraq have to be crossed by caravans from the head of the gulf or the cities of the Euphrates in order to reach central Arabia. Though hot and waterless over considerable stretches at the height of summer, they are easy to cross in winter or spring when rain-pools supply water, and grazing is plentiful. But even at these seasons caravans tend to keep to certain routes, which converge from different points on the railway between Basra and Samawa, and from Najaf, on the wells at Lina and Turbiya near the western end of the Dahana and Ardh al Madhu sand-belts. The most frequented routes are:

(1) The line of the Wadi Batin from Basra and Zubair.

(2) From Jaliba to Abu Ghar in winter or from Tel al Lahm to Qasr Nabaa in summer and thence by Busaiya, Tuqaiyid, Jahama, and Ansab to Lina, a route known as Darb al Jaludiya.

(3) From Bat-ha to Ain Hamud, whence the Darb al Jaludiya can be reached through Qusair at Tuqaiyid. Salman can also be reached from Ain Hamud.

(4) The Darb al Khaif and Darb as Salman, two routes from Samawa which meet at Takhadid and continue on as the Darb as Salman or Darb al Haj to Lina, and as the Darb al Khaif to Ansab.

(5) The Darb Zubaida from Najaf through Tallahat, Athamin, and Jumaimu to Turbiya.

The Darb as Salman has been traversed by wheeled traffic at all times of the year without much difficulty, and it was this route to Hail in the Jabal Shammar which Turkish columns took in 1903 and in 1905, though on each occasion they had been invited by the Emir of Hail, who provided guidance and transport.

The Darb Zubaida was formerly the route taken by pilgrims to Mecca, and there was a continuous series of tanks and reservoirs along the route (p. 578). The present pilgrim road is by the Darb as Salman, which is the route now known as the Darb al Haj.

The Western Desert of Wadiyan (fig. 30)

The principal characteristic of this region is the series of long continuous wadis which traverse it from south-west to north-east and which give the region its name. The composition of the desert surface is rather similar to that of the Hajara, and the surface is stony and hard on tyres, but the main wadis are longer, more deeply dug, more continuous, and fed by a closer pattern of subsidiary watercourses which often offer serious obstacles. Though they rise at over 2,000 feet, none is perennial throughout its course, but water is not as a rule far from the surface in their beds and sometimes stands stagnant in the wider parts of the channels. Little water is added by them to the Euphrates, on whose regime they have no appreciable effect (pp. 22, 24).

Three of these wadis are more important than the rest: Wadi Hauran, Wadi Ghadaf (or W. Burdan), and Wadi Ubaiyidh. The Wadi Hauran rises at 2,900 feet above sea-level, in the Jabal Anaiza, the junction of the three undemarcated boundaries between Iraq, Transjordan, and Saudi Arabia. From Rutba eastwards it is a considerable obstacle, and east of Muhaiwir the bed is 150 feet below the plain. It reaches the Euphrates between Haditha and Hit. The Wadi Ghadaf has numerous tributary *shaiban* rising in the plateau south of Rutba, and drains into the low ground about 30 miles south of Lake Habbaniya. The Wadi Ubaiyidh rises far to the west at about 3,000 feet above sea-level in the volcanic uplands east of the Wadi Sirhan and between Jauf and the Jabal Anaiza. The tributary depressions, Hamir, Arar, and Khalaija, have most intricate courses, and in winter are liable to be soft and difficult to cross. The Ubaiyidh ends in the low ground west of Karbala and Najaf after being joined near the police post of Nukhaib (1,000 ft.) by its most prominent left-bank tributary, the Wadi Tubal. Two less important watercourses to the south of the Ubaiyidh are the Wadi Khirr and the Shaib Hisb.

The region of Al Wadiyan is the desert link between the lower Euphrates on the east and Syria, Transjordan, and Palestine on the west. In Ottoman times the mail-route between Baghdad and Damascus left the Euphrates at Hit and took the Darb as Sai through Kubaisa, Kubbaz, and Qasr Amij, to Muhaiwir on the Wadi Hauran, after which it passed the depression of Jumat Qaara. From here water was always precarious until Dumeir was reached, 9 hours' camel-ride from Damascus. In earlier times there was more traffic, and water was

better conserved along the route, as disused water-holes and the ruins of a Roman tank at Kubbaz indicate (photo. 119). Little was known of this region until the end of the war of 1914–1918 when reconnaissances were made for an air route. In 1923 the Australian brothers Nairn, two ex-Service men, made the crossing of the desert possible for travellers and freight by running a regular motor convoy service from Damascus by Rutba to Baghdad, though it sometimes suffered interruption by Druse tribesmen or by wet weather in winter when the western section became impassable from mud. In 1932 the Iraq Petroleum Company laid a pipe through the region to carry oil from the fields at Kirkuk to Haifa. This pipe follows an almost direct course from Haditha to Transjordan, regardless of grade and topography, changing direction only slightly in order to keep within water-range of the Wadi Hauran. A track for motor vehicles was constructed parallel to the pipe-line and air landing-grounds were made and tube-wells sunk along the route. Imperial Airways took the same route for their mail service to India and Australia. Lastly, in 1941, a metalled road with bitumen surface was completed and opened between Haifa and Baghdad, following approximately the same route as the Nairn route between the Euphrates and Rutba, and thence the general alinement of the pipe-line to Palestine.

Permanent Settlements and Oases

There are few permanent settlements in the Iraq deserts west and south of the Euphrates. Zubair is the desert outpost of Basra; Rutba, 2,018 feet above sea-level, has been created in the western desert to meet the needs of modern communications, and is on the air route, motor road, and Iraq Petroleum Company's pipe-line. It is a growing settlement with police post, fort, post and telegraph office, and hotel. Other police posts are maintained at Nukhaib in the Wadiyan region, and at Shabicha, Salman, and Busaiya in the Hajara, all good watering points which can be reached by motors from the Euphrates, and all having air landing-grounds. Elsewhere there are occasional Arab forts, few of them permanently occupied and most of them in ruins. There are few oases in the true sense of the word in these deserts and two only are notable, Rahhaliya and Shithatha, both on the fringe of the desert between Hit and Najaf, and within a few miles of the latter is the remarkable ruin of Ukhaidhir. All of them are on the edge of the low ground where the Wadis Ghadaf and Ubaiyidh leave the desert and are dissipated in salt marshes. This collection of oases is remarkable and appears to date from very early times. From its

proximity to Karbala, Najaf, and the site of Hira, there is no more promising field of investigation for early Moslem Arab contacts with Iraq.

Rahhaliya is an oasis with about 16,000 palms and a mixed population with negroid elements. It is surrounded by brackish swamps and stagnant pools, some sulphurous and fed by springs, but replenished by rain and discharge from the western wadis in winter. At the end of the hot weather the air becomes heavy with the rank smell of rotting vegetation, fever is rife, and there is much sickness from recurrent malaria. The people live in fortified enclosures to protect them from desert raiders.

Shithatha (or Shifatha) is a much larger oasis and stretches for about 7 miles. Musil records (1912) about 600 families dwelling in fortified enclosures, each with a chief of its own. Gertrude Bell recorded in 1908 that there were 160,000 palms, but that the number was rapidly diminishing, and that on every side there were groups of headless trunks of palms. Musil speaks of only 10,000 palms for both Rahhaliya and Shithatha, but writes that there was room for 100,000 more. A later report gives 200,000 palms for the two oases. There is thus either considerable variation or an element of uncertainty as to the correct figure. The *qasrs* or walled villages, about 17 in number, are scattered among the date plantations, their enclosing walls being from 9 to 12 feet high and about 1 foot thick. Little is grown in the oasis except dates and pomegranates, but some wheat and barley are grown in a basin (*jalta*) about 4 miles to the west. Water is plentiful, but most of it issues from the ground in a warm state, slightly salt to the taste, with an odour of bitumen and sulphur (photo. 56). The smell passes as the water cools, but the brackish taste remains. Rainwater is procurable until the end of July from certain hollows, and good water is not far from the surface. Grazing for horses, sheep, and camels is good. The oasis does a brisk trade with the surrounding tribes.

Tuqtagana is another oasis with palm plantations and fortified village near the mouth of the Wadi Khirr. It appears to lie on the site of an ancient settlement dating back to Sassanid and Lakhmid times.

Qasr Ukhaidhir, near the mouth of the Wadi Ubaiyidh, is by far the most imposing ruin in these parts. Within a great square battlemented wall nearly 200 yards each way are the ruins of an early Arab palace with vaulted rooms and corridors, many of them standing to-day (fig. 31). Like Tuqtagana it probably dates back to the Moslem conquest or possibly to Lakhmid times (6th century A.D.) (Appendix C).



53. *Euphrates escarpment of the Western Desert*



54. *The eroded edge of the Western Desert*



55. *The Western Desert of Al Wadiyan*



56. *Shithatha Oasis. The sulphur spring*

Watering-places in the Southern and Western Deserts

There are several types of watering-places in the southern and western deserts. They are given below with their usual Arabic names:[1]

(1) *Permanent wells* (usually *jalib*, plural *gulban*), either cut through solid rock or lined for some distance by blocks of roughly dressed stone, are often sunk to great depths and have substantial supplies of perennial water. Inclined posts (*maqam*) are fixed over the mouth of the well for holding a pulley over which a rope is passed for drawing



FIG. 31. *Qasr Ukhaidhir from the north-west*

water. The beduin build shallow troughs of mud and gypsum (*juss*) radiating from each well-mouth. Radiating tracks are made by camels hauling outwards from the well, so that the well with its tracks and its troughs appears star-shaped from the air. This type of well is usually called a 'star-well', and is often shown on maps by a star symbol. Some of the larger will accommodate from 10 to 15 *maqam*. Tackle and some hundreds of feet of rope must be carried for drawing from these wells. If not drawn upon for some time the water tends to become stagnant and evil-smelling, but it improves after two or three days' use.

(2) *Semi-permanent water-holes* (*agla, hissu, thamila*; plur. *agal, hussiyan, thamail*) are shallow excavations, usually in wadi beds or hollows where flood water collects and remains close to the surface. The holes are dug in clusters of as many as 50, the number varying with the sub-surface water-supply. When not in use they contain a few feet of water at varying shallow depths below ground-level. In some cases the water is sweet when the holes are first dug but becomes bitter after some time. They are then abandoned and new holes are dug. Beduin prefer to camp near this type of well rather than at deep wells which entail considerable labour, but these shallow water-holes will rarely water any but small flocks in summer. The groups of

[1] These names, with special symbols, enable the type of watering-place to be identified on the 1 : 500,000 map.

water-holes at Shabicha and Salman, which are of this type, are exceptional and will accommodate about 800 tents for most of the summer.

(3) *Casual watering-places.* There are numerous forms of rain-water catchments embraced by the term *ghadir* (plur. *ghadran*).

(*a*) *Khabra* (plur. *khabari*). Where rainfall collects in a normal year in many grassy depressions of the Southern Desert, especially Al Hajara, regular watering-places are formed. Water in varying amounts is found in such *khabari* from mid-November to March, and in the largest until May or early June, but they are entirely dependent on the rainfall.

(*b*) *Thaqab* (plur. *thaqban*). Narrow clefts in the bed of a wadi or shaib, some of them 100 yards long, 8 to 10 feet wide, and 5 feet deep, are known as *thaqban*. They are almost invariably surrounded by *sidr* bushes.

(*c*) *Barbak* (plur. *barabik, barabich*): a pool formed in a loamy hollow.

(*d*) *Jalt, jalta* (plur. *ajlat*): a pool formed in a rock basin or fissure, usually on elevated ground; but the term is also applied to pools left in the rocky bed of a wadi after flood water (*sail*) has passed, and occasionally to pools formed in rocky beds where stones have been piled to form a catchment. The essential feature is rock.

(*e*) *Birka* (plur. *burak, burach*): a masonry tank, artificially constructed. They are extremely rare, except along the Darb Zubaida. Many are now in bad repair and disused along the northern section of this route, though some still hold water after rain (p. 579).

CHAPTER III

THE COASTS OF THE PERSIAN GULF

Introduction

THE Persian Gulf (fig. 32) is the great shallow trough which continues the line of the Euphrates and Tigris valleys and divides the Persian and Arabian plateaux. It runs south-east from its head for 500 miles as far as the Musandam peninsula and Ruus al Jibal promontory, which jut out from the Oman mountains and nearly shut it off from the gulf of Oman and the Indian Ocean. Its breadth, which is about 140 miles at the head, varies from 200 miles at the widest part to 50 miles at the entrance, the strait of Hormuz.

The gulf has a coastline approximately 2,000 miles long, which will be described clockwise in four sections: (1) the Musandam peninsula and Ruus al Jibal promontory, from Musandam island to Ras ash Sham; (2) the Arabian coast, from Ras ash Sham to Ras al Ardh; (3) the head of the gulf, from Ras al Ardh to Ras al Bahrgan; (4) the Persian coast, from Ras al Bahrgan to Minab. The whole coast is forbidding: the Musandam peninsula and Ruus al Jibal promontory are composed of precipitous barren mountains; the Arabian coast is desert, with reefs, shoals, and islets extending off it for many miles; the head of the gulf is formed by deltas, mud-flats, and marshes; and the Persian coast is backed by many parallel ranges of barren mountains.

The only perennial rivers that enter the gulf are the Euphrates, Tigris, and Karun, which have a joint estuary (the Shatt al Arab) at the head. Only intermittent and salt rivers enter the gulf from the Persian side and none from the Arabian side. The water-supply is scanty: on the Arabian coast it is from scattered wells, with freshwater springs in the Bahrein islands and the Qatif oasis; at the head, water is drawn from the rivers; on the Persian side there are scattered wells, and the winter rain is stored in large covered reservoirs (*birka*).

The climate is very hot and enervating in summer, though pleasant in winter. Rain is rare on the Arabian side. The prevailing wind is the north-west *shamal*, which blows regularly for five or six months of summer, bringing dense clouds of dust from June to August and affecting visibility at sea (p. 179). The north wind of winter is often interrupted by the south-east *kaus* or *sharqi*, by the north-east *nashi*, and occasionally by the south-west *suahili* (p. 169). Land and sea

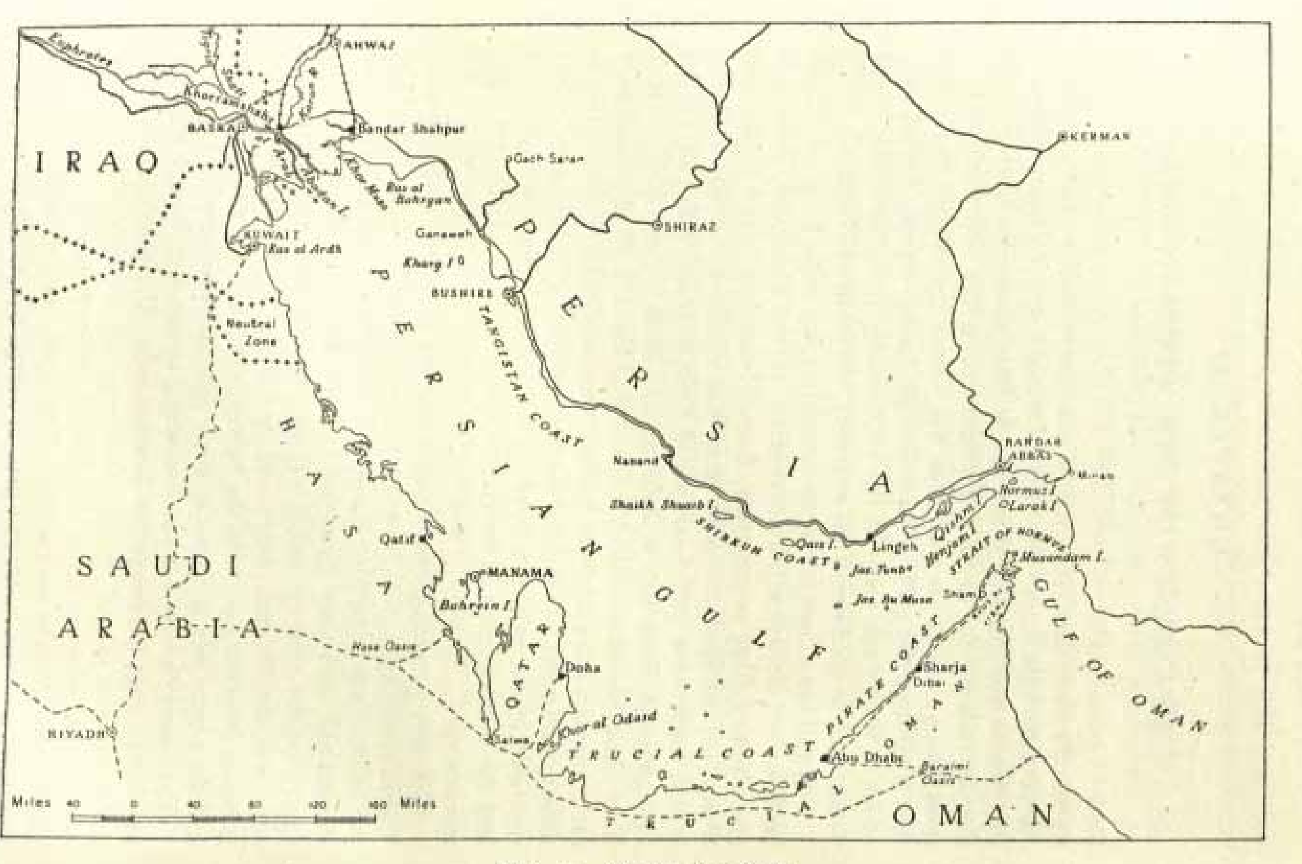


FIG. 32. *The Persian Gulf*

breezes are well marked in spring and autumn, and squalls are frequent at all seasons.

The main ports are the river ports of Basra, Abadan, Khorramshahr (Mohammerah), and Bandar Shahpur at the head of the gulf. Other ports, which are all more or less inadequate and exposed, are Bushire, Lingeh, and Bandar Abbas on the Persian side and Kuwait, Manama (Bahrein), Dibai, and Sharja on the Arabian side. There are few good anchorages.

The gulf has a central position on one of the main routes between East and West and has been important from the earliest historical times to the present day, both commercially and strategically. Navigation was active between Mesopotamia and India in ancient and classical times. Between the ninth and fifteenth centuries A.D. Arab trade reached large proportions. Portuguese explorers in the sixteenth, and English and Dutch traders in the seventeenth and eighteenth centuries tried to establish trading monopolies in the gulf (p. 263). English supremacy over the Dutch was gained during the eighteenth century. During the nineteenth century Arab piracy, tribal warfare, slave-trading, and gun-running were gradually suppressed by the English, and friendly relations established. The English also surveyed a large part of the gulf and laid submarine cables. At the beginning of the twentieth century the gulf was an important factor in world politics, owing to the ambitions of Germany, Russia, and Turkey. During the War of 1914–1918 most of the gulf ports were temporarily occupied by the British. In the present war the ports at the head of the gulf have been under British military and naval control since 1941 and are used for supplies to Russia and Turkey.

The peoples of the gulf coasts are mixed: on the Arabian side they are mostly nomad beduin, with Persian and Indian communities in the few towns; on the Persian side the cultivators are Persians and the fishermen and sailors are Arabs. The inhabitants of the Musandam peninsula and the Ruus al Jibal promontory are the primitive Shihuh fisher-folk. Dates are the staple food all round the coasts.

The chief products of the gulf region are pearls, oil, gypsum, and salt. Pearls are collected from the Great Pearl Bank in the south part of the gulf by diving from boats. The industry has declined since the world economic depression and the competition of artificial pearls. The pearl market is Manama, the capital of the Bahrein islands. Oil is found in Bahrein island, in Kuwait, in a few other places on the Arabian coast, and in Persia. Active prospecting is taking place

elsewhere, and it is this commodity which in the future will mark the importance of this region. It is refined in Bahrein island by a British branch of the California Arabian Standard Oil Company and the Texas Corporation, and in Abadan island by the Anglo-



FIG. 33. *The Musandam Peninsula and Ruus al Jibal Promontory*

Iranian Oil Company. Gypsum is widespread and is used as a cement. Salt is mined in the islands of Hormuz, Qishm, and Henjam.

The waters of the gulf are generally very clear and swarm with life. Swordfish, sting-rays, sharks, porpoises, and turtles abound. The flesh of the shark is regarded locally as having valuable properties and sun-dried strips are carried in large quantities into the interior of Arabia.

There is a dry-weather motor-road along the Persian coast, but there are no motor-roads along the head of the gulf or along the Arabian coast except in the Hasa province. Communication by road with the interior is difficult owing to the desert on the Arabian side,

the mud and marsh at the head, and the mountains on the Persian side: the only motor-roads inland are from Kuwait to Basra, from Bushire to Shiraz, and from Bandar Abbas to Kerman; also the Anglo-Iranian Oil Company's road from Ganaweh to Gach Saran. The Iranian railway runs from Bandar Shahpur to Tehran and the Caspian Sea. New termini have been made since 1941 at Tanuma opposite Basra and at Khorramshahr, which are now joined to the Iranian line at Ahwaz.

Sea communications in the gulf are maintained by steamers of the British India Steam Navigation Company, which provides a weekly fast mail service between Basra, Bushire, Karachi, and Bombay, and a weekly slow mail service between Khorramshahr, Kuwait, Bushire, Manama (Bahrein), Bandar Abbas, Muscat, and Karachi, also calling at Lingeh, Dibai, and Sharja when cargo is available.

The British Overseas Airways Corporation (formerly Imperial Airways) operates a bi-weekly service with stations at Kuwait, Bahrein, and Sharja, on the route to India and Australia. French and Dutch air-lines formerly called at Bushire, on their routes to French Indo-China and the Dutch East Indies.

1. North and West Coasts of the Musandam Peninsula and the Ruus al Jibal Promontory (fig. 33)

General

The Musandam peninsula and Ruus al Jibal promontory, at the south side of the entrance to the Persian Gulf, are the northward termination of the great Archaean backbone of Oman, the Hajar. They are composed of dissected limestone mountains and are very steep, rugged, and barren. The Musandam peninsula has been partly drowned, so that the sea has entered the valleys and in places has penetrated nearly 10 miles inland, leaving only the ridges and peaks of the mountains unsubmerged: the name Ruus al Jibal means 'hill-tops'. Many of the resulting inlets, which have no counterpart elsewhere in the Persian Gulf or around the Arabian coast, are good harbours, but owing to the intense heat can hardly be used in summer even as temporary anchorages.

The coast is everywhere precipitous, and the cliffs mostly overhang, with deep caverns in some places, due to wave action. There are small sandy beaches at the heads of most of the inlets, with hamlets and date-palms on some of them, but they are backed by steep slopes and have no communications inland. There are no communications

along the coast, except for a track from Khasab, the only large village, running ultimately along the Pirate Coast (p. 134).

The Musandam peninsula and Ruus al Jibal promontory are inhabited by the curious and primitive Shihuh people, who live on fish, and who migrate in summer to the date-groves at Khasab, Rams (on the Pirate Coast), and places on the coast of the gulf of Oman. The Musandam peninsula is the *Mons Asabo* of Ptolemy, the *Maceta* of Arrian, and the *Maka* of Eratosthenes.

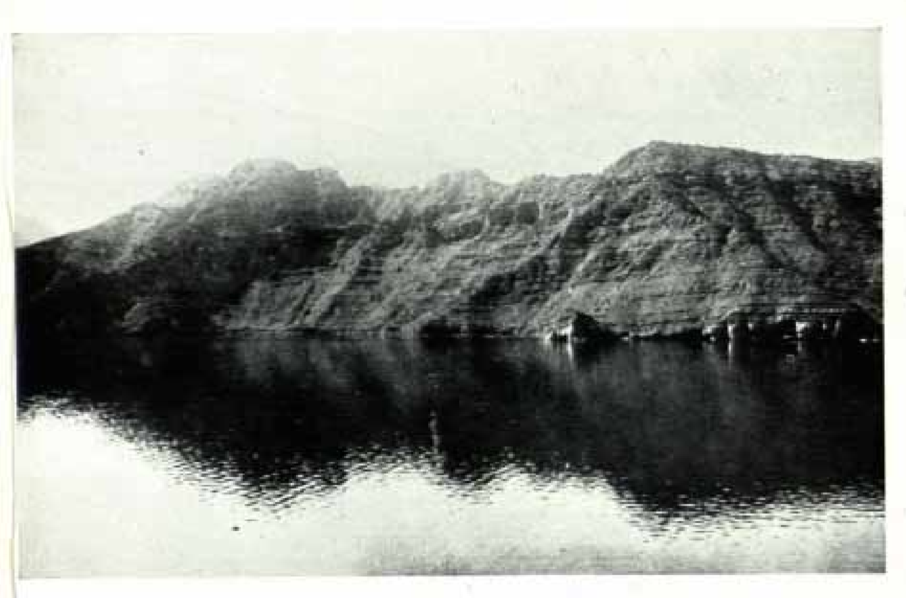
Detailed Description

Ras al Bab, the north-east extremity of the Musandam peninsula, ends in a vertical limestone cliff 453 feet high. Musandam island lies 600 yards north-east of Ras al Bab; it is precipitous all round, except in some small coves on the east side.

The north coast of the Musandam peninsula, between Ras al Bab and Ras Sharaita, 8 miles north-west, is indented by several bays and coves: Ghubbat al Khouse or Khor Fakudda, the largest bay, is entered between two narrow points 2 and 3¼ miles west-south-west of Ras al Bab; all its sides are precipitous; at its head it is separated from a bay of the gulf of Oman by a steep isthmus 2¼ miles long and less than half a mile wide. Khor Muaili, the next bay to the west, has a sandy beach at its head, immediately south of which rises a sharp peak 1,891 feet high. Kumzar, a fishing-village at the head of Khor Kumzar, is shut in by bare precipitous mountains which rise to 1,843 feet half a mile south; it has no land approach, and the small houses are closely crowded together; there is one copious well. Between Ras Mukhalif, the point at the western entrance of Khor Kumzar, and Ras Sharaita, are three coves; the eastern one has a natural harbour for small craft at its head.

Ras Sharaita, the north-west extremity of the Musandam peninsula, is a precipitous promontory 1½ miles long, rising to 405 feet in the south, and joined to the mainland by a sandy isthmus 20 feet high.

From Ras Sharaita the coast trends south-west and forms the east side of Khor Quwai, a cliffed strait between the north-west part of the Musandam peninsula and Jazirat al Ghanam, a high, waterless, uninhabited island 3 miles long, on which H.H. the Sultan of Muscat and Oman has given recreational facilities for the Royal Navy. Khor Quwai contains anchorages for a cruiser and a possible alighting area for flying-boats; there are several small beaches on both sides, but the shores are steep and uninhabited and have no land communications.



57. *The rocky coast of Elphinstone Inlet*



58. *View up Elphinstone Inlet, eastwards from the air*

59. *Sharja from the desert*



60. *Sharja on the 'Pirate Coast'. View southwards from the air*

South of Khor Quwai is a cliffed bay containing three coves, two with hamlets, Ghurum and Qabba, at their heads.

Cliffs 650 feet high continue south-west to Khor Ghubb Ali, an inlet 4½ miles long between the south-west side of the Musandam peninsula and the north-east side of the Shamm peninsula; the small village of Ghubb Ali is near a sandy beach at its head and has anchorage off it, sheltered except from the north-west. The west coast of the high Shamm peninsula is 6 miles long and is cliffed except at the head of a small inlet where Hassa village stands close to a sandy beach.

Jabal Shamm (2,921 ft.) marks the narrow winding entrance to Elphinstone inlet (Khor ash Shamm) that shuts out the sea breezes and gives the inlet the reputation of being the hottest and most oppressive place in the world. East of the entrance the inlet widens out in an area of soft shales and sandstones, and winds inland for 7 miles; it has numerous steep-sided coves, some with small villages at their heads, deserted in summer. On one of several islets are the remains of a submarine-cable station which was established by the Eastern Telegraph Company in 1864; it was abandoned four years later as the staff could not stand the climate, and was transferred to Henjam island off the island of Qishm and later to Jask. The east and south shores of Elphinstone inlet are formed by the Wali Akbar (Maqlab) isthmus, a high narrow ridge which joins the Musandam peninsula to the Ruus al Jibal promontory and separates Elphinstone inlet from the head of Malcolm inlet, an arm of the gulf of Oman (photos. 57, 58).

West of Elphinstone inlet the north coast of the Ruus al Jibal promontory continues high and rocky, with two coves, to Khasab bay, a natural harbour sheltered by Ras Shaikh Masud from south-west winds. Khasab village is behind a large date-grove at the head of a cove opening north into the bay; it is at the mouth of a long dry creek about 400 yards wide bounded by vertical limestone cliffs; a seventeenth-century Portuguese fort stands half-way along the shore. There is anchorage 1 mile north of the fort, sheltered except from the north. Khasab is comparatively large, and during the summer many inhabitants of the hamlets in the Musandam peninsula and Ruus al Jibal promontory live in temporary huts in its gardens and date-groves. Wheat and barley are grown by irrigation from wells, fish are exported as cattle-fodder, and boats are built of teak imported from Malabar; other exports are firewood, charcoal, and sheep. Between the western entrance of Khasab cove and Ras Shaikh

Masud, 3½ miles north-west, are Qida and Hana coves, each steep-sided and containing a date-grove and small settlements. There is a coastal track from Khasab to Hana.

From Ras Shaikh Masud, a prominent cliffed headland, the Ruus al Jibal promontory rises gradually to Fine Peak (4,526 ft.), nearly 11 miles south. The coast trends south-west to Ras ash Sham, 16½ miles distant, and is exposed to strong winds. It is steep and rocky, interrupted by small sandy beaches on several of which are fishing-villages. The most important of these is Bakha, which has four forts and is on the shore of a small bight, with date-groves and a cultivated plain inland. Ras ash Sham, on the south-west boundary of the Ruus al Jibal principality, rises eastwards to a mountain about 2,500 feet high. The coast is followed by the track from Khasab which then continues south-west along the Pirate Coast.

2. Arabian Coast, from Ras ash Sham to Ras al Ardh (fig. 32)

General

This coast, which forms the south-east, south, and south-west shores of the Persian Gulf, will be described from east to west in six sections: the 'Pirate Coast' of Trucial Oman, from Ras ash Sham south-west to Abu Dhabi; the 'Trucial Coast' of Trucial Oman, from Abu Dhabi west to Khor al Odaid; the east and west coasts of the Qatar peninsula, from Khor al Odaid to Salwa; the coasts of Trucial Oman and the Hasa province of Nejd, from Salwa north-west to Qatif; the Bahrein islands, in the gulf between the Qatar peninsula and Qatif; and the coasts of the Hasa, the neutral zone, and part of Kuwait, from Qatif north-west to Ras al Ardh at the entrance to Kuwait bay.

The whole of this coast is desert, and very flat and monotonous except for a few small isolated hills. The mountain backbone of Ruus al Jibal recedes from the shore leaving open desert between it and the Pirate Coast. Thus the whole Arabian coast from Ras ash Sham is backed by desert, sandy in the east and more stony in the west. There are many creeks and backwaters, with mangrove swamps in the south, and several large salt-marshes. The entrances to the creeks often change their channels, due to tidal scour, wind, and swell, and no steps are taken to prevent silting or to provide permanent navigable entrances. Not a single river enters the Persian Gulf along this coast. There are freshwater springs in the Bahrein islands and at Qatif, and scattered wells along the coast. Mirage is often

experienced. Reefs extend for many miles off most of the coast and bar access to it except at a few points. There are many small islands on the reefs. The coast is only partly known by Europeans, and some shoals are uncharted. The whole coast is exposed to north-west winds and swell.

There are several small ports, notably Sharja and Dibai on the Pirate Coast and Oqair[1] and Qatif on the coast of Hasa near Bahrein island; Manama, the capital of Bahrein island, has a fair-sized trade. Long stretches of the coast are inhabited only by scattered nomad tribes, supported by meagre desert vegetation and some wells. The only important industry until recently was pearl fishing on the Great Pearl Bank in the south part of the Persian Gulf, where the best pearls in the world are found. Oil has been exploited in Bahrein island since 1934 and at Jabal Dhahran on the mainland near by since 1938; in the same year a large field was struck at Kuwait. There are good prospects in the Qatar peninsula. Other industries are the preparation of dates and fish for export.

There are no motor-roads along the coast, except in the Hasa province of Nejd, where there is an irregular network of roads and tracks. A camel-route runs along the Pirate Coast, and another along the coast of Kuwait, but elsewhere routes keep inland. The only important route into the interior is from Oqair through the Hasa oasis to Riyadh. The flatness of the coast and the many stretches of water sheltered by reefs make it suitable for aircraft and flying-boats, and the Imperial Airways route to India was transferred from the Persian side of the gulf for political reasons in 1932; there are air-ports at Bahrein and Sharja, and several emergency landing-grounds along the coast.

Pirate Coast (fig. 34)

The coast of Trucial Oman from Ras ash Sham to Abu Dhabi, 160 miles south-west, is known as the 'Pirate Coast' because it was formerly the home of the notorious Jawasmi pirates. It is low, sandy, and desolate, and has numerous narrow creeks and shallow lagoons which protected the pirates from many attempts to suppress them. In 1819 the British finally razed their headquarters at Ras al Khaima (formerly Julfa) to the ground, destroyed their ships, and explored the coast. A peace treaty was concluded in 1820, and the 'Pirate

[1] Oqair is the usual spelling. According to R. E. Cheesman the correct pronunciation is Ojair.

Coast' became part of the 'Trucial Coast'. Most of the pirates and their descendants have become pearl fishers.

There are several small towns near the entrances of creeks, mainly composed of huts built of date-palms, but with numerous stone

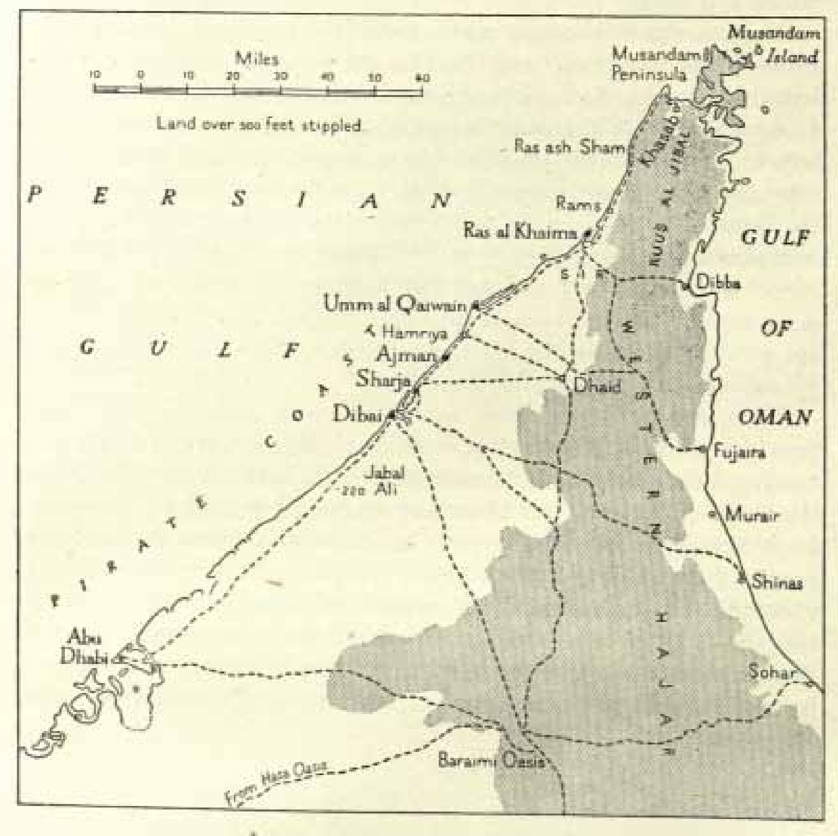


FIG. 34. *The 'Pirate Coast'*

houses, and surrounded at some distance with watch-towers on all important lines of approach to guard them from desert beduin. The towns are linked by the coastal caravan track, 190 miles long, from Khasab in the Ruus al Jibal promontory to Abu Dhabi at the south-west end of the Pirate Coast, and most of them also have routes inland across the desert and mountains to the gulf of Oman. There are occasional date-groves in the north-east.

From Ras ash Sham the coast trends south-west and the coastal

plain gradually widens away from the mountains, which trend south. Between Ras ash Sham and the town of Ras al Khaima, 20 miles south-west, the coast is low and sandy, with several creeks. Rams is a small town on the south side of a creek 12 miles south-west of Ras ash Sham; it is the port of the primitive Shihuh fisher-folk of the Ruus al Jibal promontory, many of whom migrate to its extensive date-groves in summer. The shore near by is swampy.

Ras al Khaima, the former Julfa, was the headquarters of the Jawasmi pirates until 1819 (p. 133). It has been identified with the Raamah of the Bible (Gen. x. 7; Ezek. xxvii. 22) and with the Regma Polis of Greek geographers. It is on a sandy spit extending 4 miles north-east, parallel with the coast, and enclosing a shallow lagoon which provides sheltered anchorage for native craft. Larger ships anchor about 3 miles out. The lagoon can also be used as a flying-boat anchorage, and there is space in the plain for aircraft to land, but the nearness of the mountains, which rise to more than 3,000 feet 7 miles to the east, makes landing and taking off unpleasant. Drinking-water is scarce. There are routes inland from Ras al Khaima, south-east through a pass to Dibba, with a branch to Fujaira, both on the gulf of Oman, and another south to the Baraimi oasis at the foot of the Western Hajar.

The cultivated plain of Sir extends for about 7 miles south of Ras al Khaima. It contains ten villages and many date-groves and gardens, irrigated from wells; it is muddy after rain. Red sandhills, about 130 feet high, run parallel with the low coast and about 1½ miles inland, for nearly 14 miles south-west from the southern end of the lagoon. Umm al Qaiwain is on a low sandy point with a rocky beach west of a backwater, 28 miles south-west of Ras al Khaima, and Ajman is 13 miles farther south-west near a creek which is accessible to dhows: they are both unimportant pearl-fishing towns and, like Ras al Khaima, the headquarters of small tribal principalities, comprised in the Trucial States. A camel-route leads south-east from Umm al Qaiwain to Fujaira, on the gulf of Oman; another leads south-east from Hamriya, a village 8 miles south-west of Umm al Qaiwain, to Dhaid on the Ras al Khaima–Baraimi route.

Sharja, the headquarters of another Trucial State and formerly a Jawasmi resort, is the most important town on the coast of Trucial Oman, and a flying-boat station on the British Overseas Airways Corporation route to India. It is mainly on the east bank of a narrow creek which runs south-west, protected by a sand-spit, and opens into a shallow lagoon about 4½ miles long. A ferry crosses the creek

from landing-places on the spit. There are two jetties inside the creek. Vessels anchor about 2 miles from the jetties. There are date-groves inland of the town and on the west side of the lagoon. The air station's rest-house is about a mile south-east of the town near wireless masts; its drinking-water and food are brought by steamer from Karachi. There are twenty wells 2 miles east of the rest-house. A caravan track goes east from Sharja across the desert to Dhaid on the Ras al Khaima–Baraimi route (photos. 59, 60).

The coast between Sharja and Dibai, 9 miles south-west, is swampy in the north-east, with the lagoon behind a low island and spit, and sandy in the south-west. Dibai is an important town and Trucial principality on both banks of a long inlet, across which ferries ply continuously. There are three jetties inside the inlet. Ships anchor more than a mile off shore. The inlet affords anchorage for flying-boats, but it is narrow and sometimes hampered by cross winds. There is good water from shallow wells. Dibai is a distributing centre for goods for the interior and along the coast. It has large bazaars and a boat-building industry. There are two camel-routes south-east and south-south-east to the Baraimi oasis, and another south-east to Shinas on the gulf of Oman.

Between Dibai and Abu Dhabi, 80 miles south-west, the coast has many interconnected creeks and mangrove swamps. It is so low that the solitary hill, 220 feet high, is called Jabal Ali ('the exalted mountain'): it is about 20 miles south-west of Dibai and 4 miles inland. The coast is barren, waterless, little known, and uninhabited, except for a small village with some date-palms and water-holes a few miles south-west of Dibai. The coastal track keeps about 5 miles inland.

Abu Dhabi, another former Jawasmi resort, and the last of the principalities of the old Pirate Coast, extends 2 miles along the coast. The outer anchorage is about 2½ miles out, and the inner, sheltered by a reef, is usually full of native craft. The town is on an island, as two backwaters on either side of it are connected, about 9 miles inland, by a channel which forms a natural barrier against nomads from the desert; it is fordable at low water, and a watch-tower in mid-channel guards the crossing of the camel-route which goes east to the Baraimi oasis. Water is brought by boats from Dibai.

Trucial Coast (fig. 35)

The coast of Trucial Oman from Abu Dhabi to Khor al Odaid, nearly 200 miles to the west at the base of the Qatar peninsula, is

completely barren and uninhabited. It is low and sandy, with very occasional hills and low cliffs, and one large area of marsh. Low islands, sometimes surrounded by coral reefs, and numerous shoals, some of them of great extent with large areas uncovered at low water,

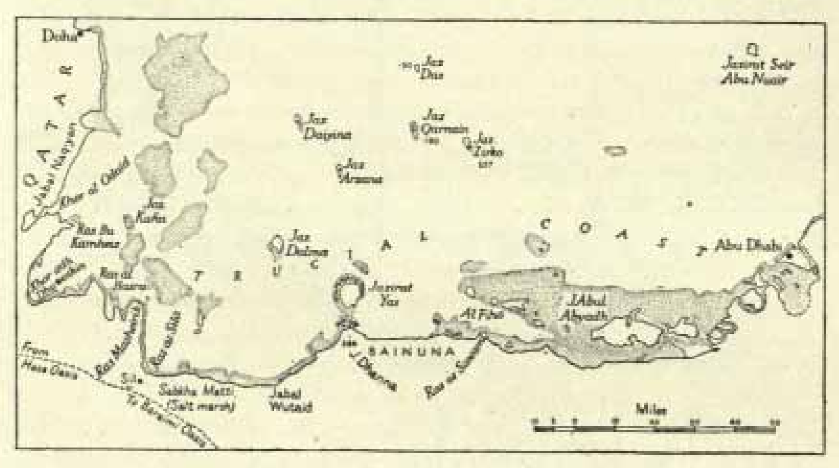


FIG. 35. *The 'Trucial Coast'*

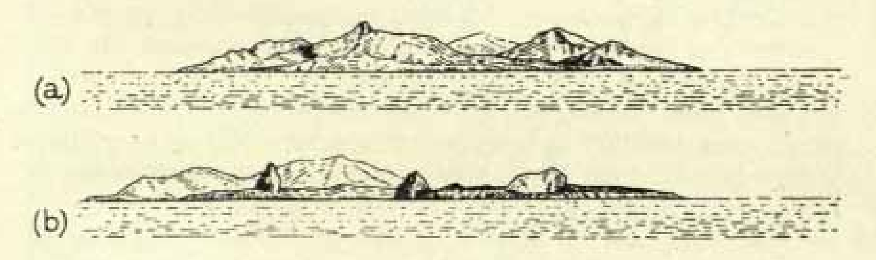


FIG. 36. (*a*) *Jazirat Zirko from the east*
(*b*) *Jazirat Qarnain, with Zirko behind, from the west-north-west*

lie off the coast and make approach very difficult even for native craft, and there are a number of prominent rocky islands, such as Jazirat Zirko and Jazirat Qarnain, 50 miles or more out to sea (fig. 36). There are no camel-tracks along the coast or into the interior, except the summer track, running between 5 and 20 miles inland, from the Hasa oasis to the Baraimi oasis.

From Abu Dhabi the coast trends south-west for about 35 miles, and is composed of low islets, covered with mangroves, lying off wide creeks and bays in the mainland, which has low cliffs. The stony desert coast then trends west with several slight indentations, for

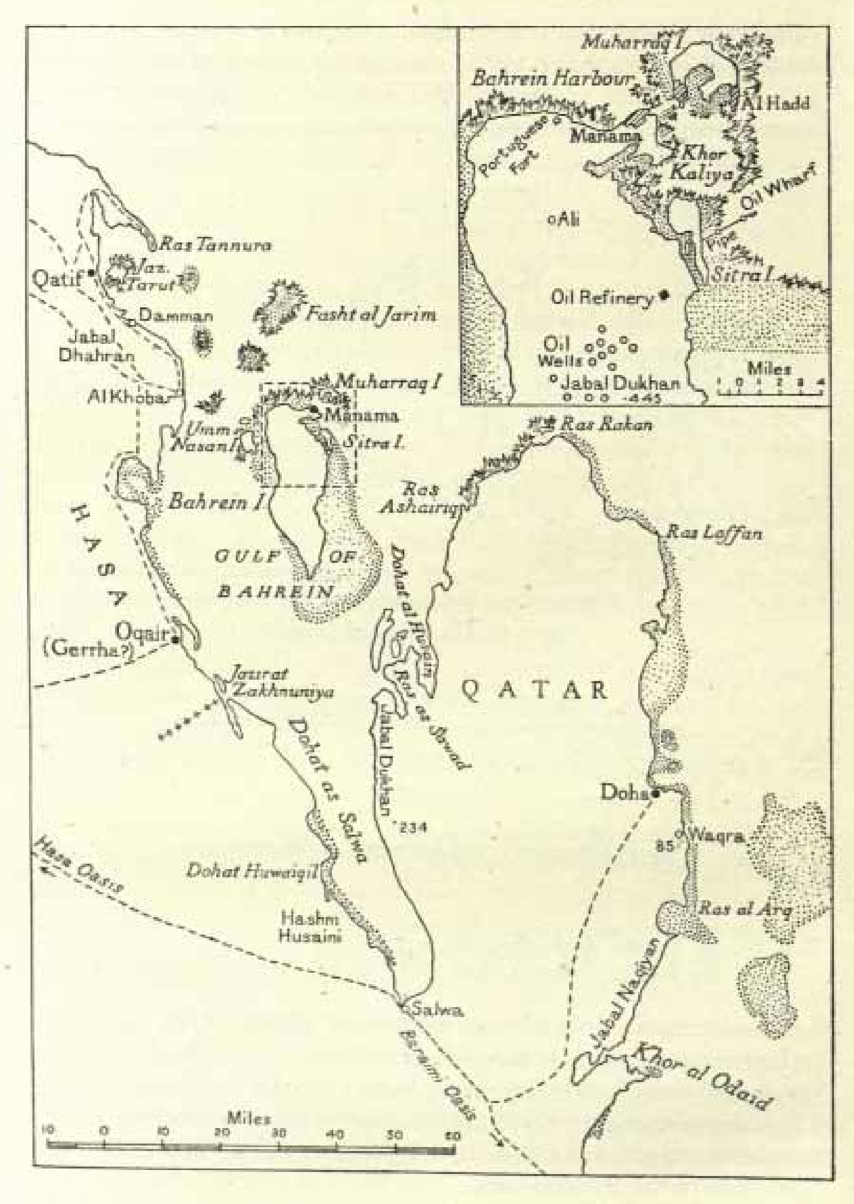


FIG. 37. *The Qatar Peninsula and the Gulf of Bahrein*

55 miles to Ras as Sawami, a point with a cliff 50 feet high; a chain of low islands extends along a reef several miles off shore. From Ras as Sawami low ranges of dark volcanic hills extend along the coast of the Bainuna district for 35 miles west to Jabal Dhanna, a hill 386 feet high with several cliffs, on a rounded promontory. Jazirat Yas, a scrub-covered volcanic island with two villages, lies about 5 miles north of the promontory; it has a coral reef on the northern shore but affords sheltered anchorage to the south-east, and it has an emergency aircraft landing-ground. The volcanic coastal hills continue for about 26 miles south-west from Jabal Dhanna to Jabal Wutaid, which is about 3 miles inland. From Jabal Wutaid the shore of the Sabkha Matti salt-marsh extends to Ras as Sila 32 miles to the west. It is very low, swampy, and desolate. The brackish well at Sila, 5 miles inland from Ras as Sila, is the point on the Hasa–Baraimi track nearest to the Trucial Coast. The coast trends north for 16 miles from Ras as Sila, with several small rocky points, and rises landwards in steps to a desert tableland about 100 feet high; low white cliffs continue north-west for 3 miles to Ras Masheirib, a low rocky point. Between Ras Masheirib and Ras al Hazra, 11 miles north-west, are two inlets with hilly shores, separated by a short point with a cliffed islet off it. Between Ras al Hazra and Ras Bu Kamheiz, nearly 15 miles north-north-west, is Khor adh Dhuwaihin, a large bay bordered by low white hills except at its head, which is 18 miles west-south-west of Ras al Hazra. Ras Bu Kamheiz is a rocky point at the east end of the hilly promontory forming the south-east shore of a long narrow inlet, Khor al Odaid, at the base of the Qatar peninsula. There is sheltered anchorage off the entrance, and a flying-boat can land in the inlet; but there are extensive shoals some distance off the shore.

Qatar Peninsula (fig. 37)

The Qatar peninsula is about 115 miles long from north to south, and about 55 miles from east to west in its widest part. It is formed by a gentle limestone up-fold and rises to 250 feet in the centre. The monotonous plateau is strewn with limestone blocks and has a sparse desert vegetation. Sand-dunes border the south-east and south-west coasts. Many dangerous islets, reefs, and shoals lie off shore. Most of the wells of the peninsula are quite independent of the local rainfall, the water probably having an ultimate source in the highlands of Nejd. There are towers of refuge on the plateau, to protect the Qatar shepherds from beduin raiders. The only caravan-route runs

south-west from Doha on the east coast to Salwa at the south-west corner of the peninsula, and joins the Hasa–Baraimi route about 20 miles south-east of Salwa. There are tracks connecting the wells of the peninsula. The Shaikh of Qatar, one of the Trucial principalities, has granted an oil concession which may prove to be valuable, and Dukhan oil camp (Petroleum Development (Qatar) Ltd.) has been constructed on the west coast opposite Doha, to search for oil.

The coast trends north-east from the head of Khor al Odaid for 36 miles to Ras al Arq, bordered by white sandhills (Jabal Naqiyan) for the first 30 miles. A low islet lies off an unexplored backwater south of Ras al Arq. The coast then trends north for 20 miles to the east entrance-point of Doha bay; it is low and sandy or stony, with one rocky hill 85 feet high, 11 miles north of Ras al Arq. The town of Waqra is north of this hill; it has a harbour for small craft, and large vessels can anchor 3 miles east. Doha, the capital of Qatar, is on the south side of its bay, which opens north-east and is bordered on the south and west by stony flat-topped hills from 40 to 50 feet high; there is an anchorage about half a mile off shore, a small jetty, and a seaplane anchorage. The town has several forts and is partly walled; its inhabitants are mostly pearl fishers. The water-supply is from wells 1 mile west of the town. There are emergency landing-grounds 2 miles south-west and 3½ miles north-west of the town. There are several ruined villages inland of Doha bay, destroyed because local superstition said that their date-gardens were the cause of plague. The coast continues north from Doha for 43 miles to Ras Laffan; after low hills for the first 10 miles it is very flat; a slight indentation gives shelter to pearling craft, and north of it there are two small shallow inlets, opening south-east and north-east, about 27 and 31 miles north of Doha respectively. Between Ras Laffan and Ras Rakan, 27 miles north-west, the point of an islet off the north end of the Qatar peninsula, there are two small bays: they afford shelter to pearling craft, as does the islet of Ras Rakan; there are three villages, the middle one deserted. The north-west end of the coast is bordered by small sandy hillocks.

The west coast of the Qatar peninsula forms the east shore of the gulf of Bahrein and Dohat as Salwa, a funnel-shaped bay more than 100 miles long, which is mostly unsurveyed and contains many reefs and shoals. The sandy coast trends south-west for 20 miles, with several indentations and two small towns, to Ras Ashairiq, the rocky west point of a small bay. The ruins of two towns lie east and south of it. The coast then trends south-south-west for 25 miles to the

entrance of Dohat al Husain (Adhwan), a shallow inlet about 10 miles long, opening north, which has some huts on its shores. The peninsula (Ras as Sawad) forming the west side of Dohat al Husain has a range of stony hills along the north-west side, and an unsurveyed group of islands lies off it. The west coast of Ras as Sawad forms the east shore of another inlet, about 5 miles long, opening north-west. The coast then trends south for about 25 miles and is backed by sandhills (Jabal Dukhan) rising to 234 feet in the south. It is then thought to trend south-south-east, with the sandhills farther inland, for about 30 miles to Salwa at the head of the bay.

Salwa to Qatif

Salwa contains three groups of palm-trees, four wells, and the ruins of a castle.

The west shore of the shallow Dohat as Salwa trends north-west, with several small bays and low sandy headlands, for 75 miles to Oqair. There is a wide shell and coral strand along the shoreline; a bare plain 2 or 3 miles wide extends to sandhills inland, and is followed for a short distance by the Qatar–Hasa caravan-route. The only conspicuous feature is Hashm Husaini, a bluff about 300 feet high at the end of a sandstone ridge, 15 miles north-west of Salwa. Dohat Huwaiqil, a bay about 27 miles north-west of Salwa, has sheltered anchorage about a quarter of a mile off shore and a good landing-beach. Twelve miles south-east of Oqair is Jazirat Zakhnuniya, a bare sandy islet with a village, whose south end marks the boundary between Trucial Oman and the Hasa province of Nejd; there are two anchorages 2 miles south of the islet.

Oqair harbour is about 7 miles long and is enclosed by a sandspit; the narrow entrance is at the south-east end, and a shoal lies off it. The small town on the west shore has a quay, jetty, customs-house, and old fort. It is the port for the Hasa oasis, and imports cloth and foodstuffs which are carried inland on camels and white asses over the soft dune desert which comes almost down to the sea. The only water-supply is from a fortified well on the edge of the dunes. There are extensive ruins near Oqair, and aerial photographs have revealed the layout of an ancient city, thought to be the Chaldean port of Gerrha. Oqair has a musical beach south of the fort, the sands just above high-water mark whistling with every step.

From Oqair to Qatif the coast forms the west shore of the gulf of Bahrein. It trends north from Oqair for 43 miles, with two shallow

bays fringed by salt-marsh, and several isolated sandhills, to Al Khobar. Inland of Al Khobar is Jabal Dhahran, 300 feet high, the principal field of the California Arabian Standard Oil Company. There are about twenty oil-wells in the area. The crude oil is pumped through pipes to storage tanks and terminals at Al Khobar and at Ras Tannura (p. 145), whence it is shipped to Bahrein for refining. It is hoped that this field may prove to be one of the richest in the east. From Al Khobar the coast curves north and north-west for nearly 15 miles to the ruined town and fort of Damman, and a further 10 miles north-west to Qatif. There is a dry-weather motor-road from Oqair to Qatif, through Dhahran, Al Khobar, and Damman. Many reefs and shoals lie off the coast.

Qatif is composed of a fort containing 700 houses near the beach, a *bazar*, and seven suburban villages among the date-groves of its damp, unhealthy oasis. There is plentiful water from springs. Qatif can be reached by small craft through several channels, but landing is inconvenient. It exports dates and imports foodstuffs. There is a motor-road north to Ras Tannura and a dry-weather road south-east to Oqair. Jazirat Tarut lies off Qatif on the coastal reef which extends nearly 10 miles off shore: on it are date-groves, two forts, and an emergency landing-ground.

Bahrein Islands

The Bahrein islands lie inside the entrance to the gulf of Bahrein between Qatif and the north end of the Qatar peninsula. The principal island, Bahrein itself, is 30 miles from north to south and nearly 10 miles from east to west in the north, tapering southwards. Manama, the capital, is at the north-eastern tip (photo. 61). The low and sandy Muharraq island, north-east of Bahrein, is 3 miles from east to west and has three southward promontories: Muharraq town is on the west of these, and Al Hadd town on the east. Sitra, a palm-covered island 4½ miles long and 1¾ miles wide, lies off the east coast of Bahrein near its north end. Umm Nasan, a low desert island with two peaks, is 3½ miles long and 2½ miles wide and lies off the west coast of Bahrein in the same latitude as Sitra. There are also several small uninhabited islets in the group.

Bahrein island is formed by a gentle dome of limestones, flints, and marls. The centre of the island is occupied by a large uncultivated depression 13 miles long and 4 miles wide surrounded by limestone cliffs. Jabal Dukhan, a hill of darker limestone, which contains the

61. *Manama, the chief town of Bahrein*

62. *Fishing-nets and traps seen through clear water near Bahrein*



oilfield, rises out of this depression to 445 feet. The south end of the island is a long, low, sandy point.

The coasts of Bahrein are low, with date-groves in the north. They are fringed with coral reefs and strands which extend for about 1½ miles on the north, 5 miles on the west, 6 miles on the south, and up to 18 miles on the east, making approach impossible except in small craft. Many fish-traps are set on the northern reefs (photo. 62). Bahrein harbour is north of the island and north-west of Manama; it is shallow, and large vessels anchor 4 miles out; the inner harbour affords shelter for small craft. Khor Kaliya, north-east of Bahrein island and south of Muharraq island, has deep sheltered water less than a mile from the shore; it is almost landlocked, the entrance being in the south-east between two reefs. There is also good anchorage outside Khor Kaliya, in Sitra anchorage.

Bahrein is famous for its copious freshwater springs at the north end of the island and in the sea. The water, whose amount bears no relation to the local rainfall, is thought to have an ultimate source in the highlands of Nejd: the yield is diminishing owing to wastage. Drinking-water is imported from India.

The island contains several archaeological remains. Bahrein is thought to have been the ancient Dilmun and the classical Tylos. A necropolis covers 12 square miles near the village of Ali, about 6 miles south-west of Manama; there are thousands of small tumuli and a few large ones, whose origin and date are uncertain. Though they are similar to those of the Phoenicians, the theory that these people emigrated from the Persian Gulf to the Mediterranean is no longer accepted. There is a ruined Arab city near Manama, and a Persian mosque with two minarets. A ruined sixteenth-century Portuguese fort stands half-way along the north coast.

Manama, the capital and port, extends for 1½ miles at the east end of the north coast. It had a population of 28,000, including many wealthy Arab, Persian, and Indian merchants, and about 300 Europeans and Americans, in 1942. Wide roads connect the various quarters of the town, and there are motor-roads or tracks with bus services to most of the villages. Manama has an electricity station, wireless station, post office, hospitals, club, up-to-date schools, public gardens, and a British Political Agency. There are two piers in Bahrein inner harbour, which is usually full of native craft. Steamers of the British India Steam Navigation Company provide a regular mail service to and from India, Persia, and Iraq. Muharraq town has an entirely native population of 18,000. The water-supply of

both towns is from artesian wells. The climate, though hot and humid in summer, is more pleasant than that of any other port on the Arabian side of the Persian Gulf.

A causeway with motor-road links Manama and Muharraq, 1½ miles north-east; it does not obstruct the shallow boat-channel connecting Bahrein harbour with the north-west end of Khor Kaliya; a swing-bridge was completed in 1941. Before the causeway was built the people waded across or were carried by donkeys.

Khor Kaliya is important as a British naval base and as a station on the British Overseas Airways Corporation route to India and Australia. The naval base was recently transferred from Henjam island and the base there handed over to Persia; warships usually anchor in the west of the Khor, the centre being obstructed by an extensive shoal; there is a good site for stores and recreation on the shore. The flying-boat anchorage is in the north-west of the Khor. There is an excellent natural aircraft landing-ground of hard dry sand on Muharraq island to the north.

The total population of the Bahrein islands is about 120,000, of whom more than a third live in the two towns of Manama and Muharraq, and most of the others along the cultivated north coast of Bahrein island (the population of Bahrein island was 89,970 in 1941). The people are mainly occupied in agriculture, trading, pearl fishing and other industries, and as employees of the Bahrein Petroleum Company. The chief crops, grown by irrigation from the freshwater springs, are dates, citrus-fruits, and lucerne. Dairy cattle are fed on dried fish. Bahrein is the marketing-centre of the famous pearl-fishing industry of the Persian Gulf, which dates back to classical times and is mentioned by Strabo, and about 250 boats from Bahrein itself take part during the four summer months; there is a side industry in mother-of-pearl. Oil was discovered in 1932, and offsets the effects of depression in the pearl trade since the manufacture of artificial pearls; it is exploited and refined by the Bahrein Petroleum Company, a British company owned by the California Arabian Standard Oil Company and the Texas Corporation; there are about sixty wells in the central depression and on Jabal Dukhan; the large refinery is north-east of the depression and is being expanded; the oil is loaded for export at an oil wharf in deep water in Sitra anchorage, connected by a pipe with tanks on Sitra island. A network of all-weather roads covers the oilfield area. Other industries include boat-building, making sailcloth and reed mats; white donkeys are not bred now. Most of the trade of the Hasa passes through Bahrein, the

goods being transhipped and re-exported to Qatif and Oqair on the mainland. The principal exports are oil, pearls, wood fuel, rope, hides and skins, dried fish, and dates, and the chief imports are cotton goods, foodstuffs, hardware, cutlery, and cement.

Qatif to Ras al Ardh (fig. 38)

The coast from Qatif to Ras al Ardh, nearly 250 miles north-west at the entrance to Kuwait bay, is low and sandy or stony with salt-marshes and occasional isolated hills. It is barren and uninhabited except for a few small villages and several beduin tribes. Unexplored reefs extend more than 20 miles off the coast in most places and allow only small boats to approach. An irregular network of motor-roads and tracks covers the desert for more than 50 miles inland.

Qatif harbour is sheltered from the north-east by Ras Tannura, a sandy point about 15 miles long. There is sheltered anchorage inside the point, a small pier and customs-house, and an aircraft landing-ground. The California Arabian Standard Oil Company is developing an oil port at Ras Tannura, connected to the Dhahran oilfield by motor-road and pipe-line; crude oil is exported at the rate of about 1,500 barrels a day (1941) for refining at Bahrein.

There is anchorage, exposed to north and north-west winds, off Jabal Dhalaifain, a square black hill 23 miles north-north-west of Qatif. Jubail, 16 miles north-west of Jabal Dhalaifain, has a small creek with a boat anchorage and an emergency landing-ground; there are motor-roads south-east to join the Qatif–Oqair coastal road at Jabal Dhahran, and another north-west almost to the neutral zone, with branches inland and several tracks to the coast. From Jubail the coast curves north-north-west for 15 miles to the end of the sandy Batina peninsula, off which is Jazirat Abu Ali. Between this island and Ras al Bidya, 15 miles north-west, is the entrance to an irregular shallow bay about 30 miles wide, ending in swamps in the south and north-west and containing two small islands with villages; there is an emergency landing-ground on Jinna, the larger island.

Ras al Bidya is a low sandy point projecting south from the east end of a peninsula about 12 miles long and 7 miles wide on which are brown rocky hillocks. It has a track inland. North-west of this the coast continues low with small bays to Ras at Tanajib, a long curved point; there is a dry-weather road running south from Manifa, the southernmost bay. A track runs west from the bay between Ras at Tanajib and Ras as Saffaniya, another curved point 16 miles north-west. Another track runs south-west from the bay between Ras as

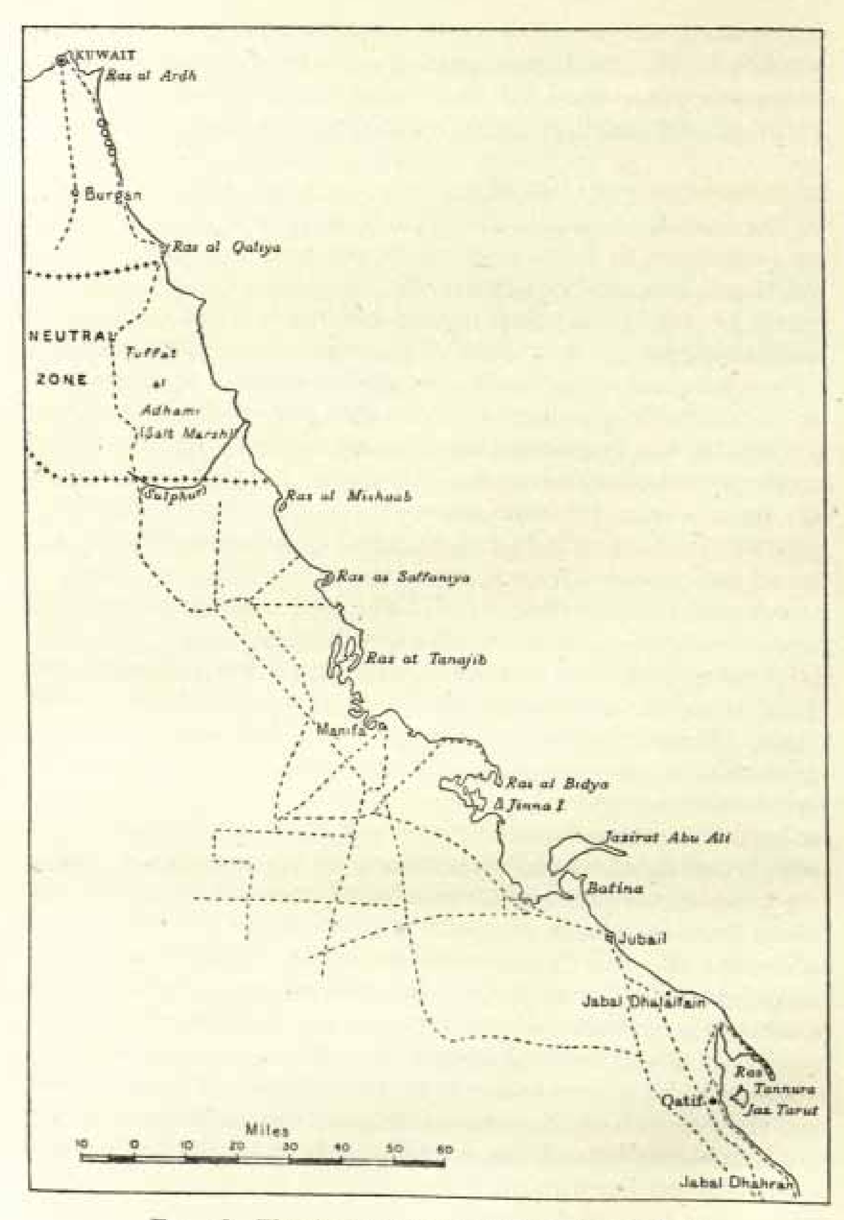


FIG. 38. *The Arabian Coast: Qatif to Ras al Ardh*

Saffaniya and Ras al Mishaab, 18 miles north-west, a cape with sheltered anchorage to the south-east.

From approximately the fourth to the fiftieth mile north-west of Ras al Mishaab the coast is that of the neutral zone owned jointly by Nejd and Kuwait. It is mainly covered by the salt-marsh of Tuffat al Adhami, which is usually dry but is impassable in wet weather; a sulphur stream flows through the south-east part. There are isolated sandhills, and the desert here rises to a bare gravel plain over 700 feet high about 50 miles inland. There is no shelter from the strong north-north-west winds, except for small craft, anywhere between Ras al Mishaab and Ras al Ardh, nearly 90 miles north-west.

The south boundary of the sultanate of Kuwait is 3 miles south of Ras al Qaliya, a low point. From Ras al Qaliya the coast is low and stony for 36 miles to Ras al Ardh at the south-east entrance of Kuwait bay. There are four villages with wells, and the route from Qatif to Kuwait converges on the coast.

There are oil-wells at Burgan, about 27 miles south of Kuwait and 10 miles inland, owned by the Kuwait Oil Company. This company was formed in 1934 by an alliance of the Anglo-Iranian Oil Company and the Gulf Corporation, and is under British control. The first drilling, at Bahra on the north shore of Kuwait bay in 1936, was unsuccessful, but a large field of oil was struck at Burgan in 1938. There is as yet no refinery or pipe-line, but a jetty has been built at Shuwaikh (p. 149), and there are good prospects for future oil development.

3. The Head of the Gulf, from Ras al Ardh to Ras al Bahrgan (fig. 39)

General

The coast of the head of the gulf includes, from south-west to north-east, part of the coast of Kuwait from Ras al Ardh to Khor Zubair, the entire coast of Iraq from Khor Zubair to the Shatt al Arab, and part of the coast of Persia from the Shatt al Arab to Ras al Bahrgan.

Except for Kuwait harbour, which is surrounded by sandy desert, the coast is composed of the deltas of the Shatt al Arab (the estuary of the Euphrates and Tigris rivers) and Bahmishir (the natural mouth of the Karun river), and of the marshes and flats on either side of Khor Musa. The soft alluvial mud, deposited in recent historical times (fig. 14), prevents the construction of a commercial port near the river mouths, and the main routes and large ports are on firmer

ground many miles inland. Basra, the port of Iraq, is 72 miles upstream from the inner bar of the Shatt al Arab, though it has a dredger out-port at Fao, and Khorramshahr (known in Iraq as Mohammerah), the chief port of Persia, is 52 miles upstream; the

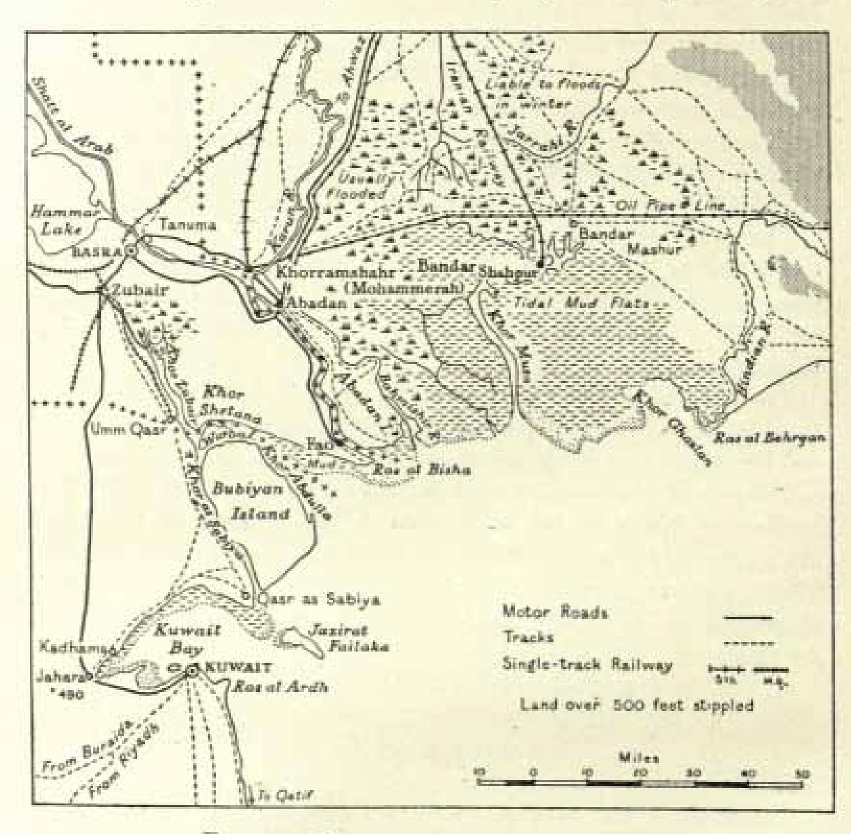


Fig. 39. *The coast at the head of the Gulf*

expensive buoyage system of the Shatt al Arab and dredging the bar are carried out by Basra port authorities, so that Khorramshahr port is neither open nor free; the new Persian port and railway terminus, Bandar Shahpur, has been built on the edge of a mud island 40 miles up Khor Musa channel, and handles increasing traffic. Tanuma opposite Basra and Khorramshahr, now linked to the Persian railway, are also being developed. Date-groves on the banks of the Shatt al Arab and Bahmishir and those at the head of Kuwait bay are the only cultivated belts of this coast.

Coast of Kuwait from Ras al Ardh to Khor Zubair

Kuwait harbour is the largest bay in the gulf: it is horn-shaped and is 24 miles from east to west and 13 miles from north to south. The entrance is in the south-east, between Ras al Ardh and Jazirat Failaka, a low island 12 miles north-east. The harbour is surrounded by sandy desert, sparsely covered with scrub. The south shore contains three shallow bights, and the north-west and north shores are fringed by extensive mud-flats. The bay is the only good anchorage, and the only possible site for an enclosed harbour, near the head of the gulf; it was projected as the terminus both of the Euphrates Valley Railway, a British scheme at the end of the nineteenth century, and of the German Baghdad Railway at the beginning of the twentieth, before Basra was made into a modern port.

The town of Kuwait is on the north-west slope of a blunt sandstone promontory 7 miles west-north-west of Ras al Ardh (photos. 63, 64). It is enclosed on the desert side by a wall surmounted by towers and containing five gates. There are numerous breakwaters, forming sheltered cambers. Steamers anchor just over a mile from the shore and discharge by lighters. There are two oil jetties at Shuwaikh, 2½ miles west of Kuwait, one built recently by the Kuwait Oil Company (p. 147). The climate is fairly healthy, as the prevailing north-west wind from the desert is tempered by blowing over the bay, without, in that space, becoming too humid. The town has an estimated population of 70,000. Foodstuffs have to be imported, though increasing quantities are brought by motor from Jahara at the head of the bay. Water is brought in native boats from the Shatt al Arab estuary, and some is obtained from wells south of the town. Kuwait is famous throughout the gulf for shipbuilding, for which teak is imported; it builds and repairs dhows for trade and pearl-fishing (photos. 65, 66). It is the natural port for north-east Arabia and has good grazing for camels in the vicinity, so that there are additional imports for the beduin. It is also a transhipment point for the produce of smaller gulf ports and of India. Steamers of the British India Steam Navigation Company provide weekly services to Bombay and Basra. A motor-road leads to Basra, motorable tracks and camel-routes to Buraida, Riyadh, and the Hasa oasis, and a track to Qatif. There is an R.A.F. landing-ground three-quarters of a mile south-south-east of the town, and a wireless station. The British Overseas Airways Corporation use flying-boat moorings near the oil jetties at Shuwaikh.

The south shore of Kuwait harbour continues west for about 17 miles, with two bights fringed by reefs and shoals, to the head, which is swampy. Jahara is a small village with good wells, on the motor-road from Kuwait to Basra; dates, cereals, and vegetables are grown and sent to the capital by motor in increasing quantities. Kadhama, a hamlet north-east of the head of the bay, was where the Germans hoped to station the terminus of the Baghdad Railway. The only landing-place at the head of the bay is at Khuwaisat, between Jahara and Kadhama.

The coastal plain of the north-west part of Kuwait harbour is about 2½ miles wide, with wells at intervals and patches of scrub and grass. Inland, along the desert edge, is a cliffed sandstone ridge 25 miles long, which rises to 490 feet south-west of the head of the bay, with a gap north-west of Jahara through which passes the Kuwait–Basra motor-road. From a point 24 miles north-east of the head of the bay the coast trends east-south-east for 12 miles, the first 6 miles being a morass, to the end of the wide tongue of land between the east-north-east shore of Kuwait harbour and the south-west shore of Khor as Sabiya. A coastal track connects Jahara with Qasr as Sabiya, a ruined mud fort with date-palms and tamarisks which guards the entrance to the Khor.

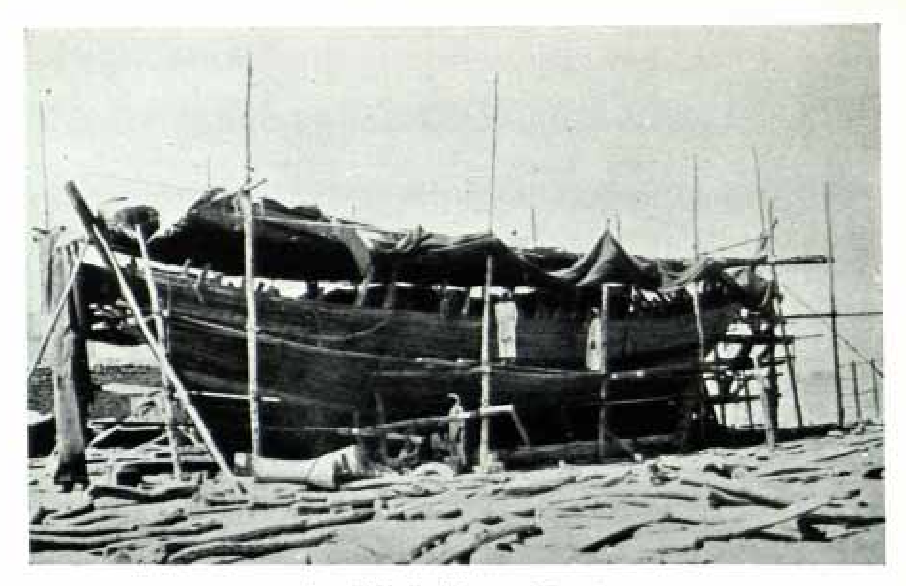
Khor as Sabiya is a narrow channel between the Kuwait mainland and Bubiyan island, and extends almost to the Iraq frontier; it winds north-north-west for 30 miles and is only accessible to small craft at half flood, as there are numerous rocks and dry patches on the mud-flats in the entrance. The mainland shore is swampy; a track runs north-north-west from Qasr as Sabiya to Umm Qasr in Iraq, along the edge of the desert between 1 and 2 miles inland, passing several wells; there are two short cuts across the desert to join the track from Jahara to Qasr as Sabiya. Bubiyan island is 27 miles long and 15 miles wide; it is flat and barren, with swampy shores. Warba island, north-west of Bubiyan island, is separated from the mainland of Iraq by Khor Shetana; it is low and covered with reeds and coarse grass. The Iraq boundary passes outside Bubiyan and Warba islands and crosses the coast of the mainland about 3 miles north-west of the junction of Khor as Sabiya and Khor Shetana, in the entrance to Khor Zubair.

Coast of Iraq from Khor Zubair to the Shatt al Arab

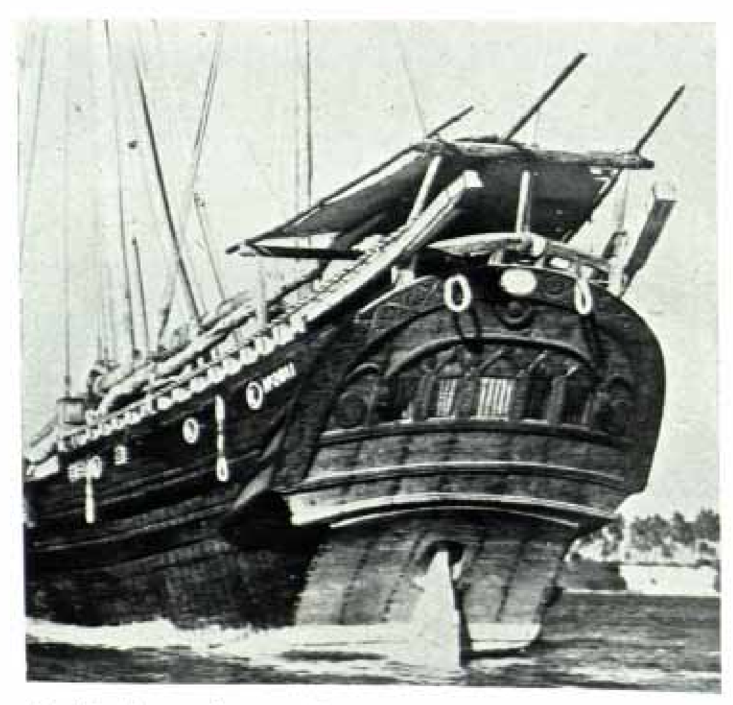
The coast of Iraq is about 36 miles long and is composed of an extensive mud-flat, partly covered at high water during south-east

63. *Kuwait. The boat cambers*

64. *Kuwait. The town and port*



65. *Ship-building at Kuwait*



66. *The decorated poop and stern windows of an ocean-going dhow of the Persian Gulf*

gales, with desert inland and tidal flats off shore; it is bounded on the west by Khor Zubair and on the east by the right bank of the Shatt al Arab estuary. There are no beaches or landing facilities, and fresh water is found only at Fao. The desert inland becomes a morass after rain.

Khor Zubair winds north-north-west for nearly 20 miles to its head, which is in a marshy plain intersected by creeks in all directions. Its shores are swampy, with sandy desert on each side. The track along the desert edge to Umm Qasr continues north-west for 27 miles to the town of Zubair, where it joins the motor-road from Kuwait to Basra. Umm Qasr has a mud fort with wells, about 6 miles up Khor Zubair on its west bank, but lower down a small port has been made since 1941, and a metre-gauge railway has been built from it to Zubair, thus linking it with Basra (p. 517).

From the east entrance to Khor Zubair the muddy coast curves north-east and then east, forming the north shore of Khor Shetana which separates it from Warba island. It then turns east-south-east for 27 miles and forms the north shore of the wide Khor Abdulla to Ras al Bisha at the south-west entrance to the Shatt al Arab.

The Shatt al Arab, the estuary of the Tigris and Euphrates, has low muddy banks which are often submerged and are intersected by numerous irrigation canals. Fertile date-groves are enclosed by embankments, particularly on the Iraq bank, but beyond them is desert or swamp. There are numerous hamlets in the date-groves, obtaining their water-supply from the river, and cereals and vegetables are grown (p. 60). The main entrance channel was dredged to a least depth of 23 feet in 1941. Fao, on the right bank 6 miles upstream, is the telegraph station at the terminus of the British cable from Karachi via Jask and Bushire; it is also the dredger depot and the buoyage depot for the port of Basra, and has a wooden jetty. A road runs inland of the date-groves from Fao to Basra, and is motorable in dry weather except for the first 10 miles. Basra, the great port of Iraq, is 72 miles upstream from the entrance of the Shatt al Arab: it is described on pp. 505 ff.

Persian Coast from the Shatt al Arab to Ras al Bahrgan (fig. 39).

The Persian coast at the head of the gulf is composed mainly of the mud-flats and marshes which extend 60 miles inland round Khor Musa inlet, together with Abadan island to the west. The tracks across the marshes keep more than 40 miles inland and are motorable only in dry weather.

Abadan island is the low desert plain, 40 miles long, between the Shatt al Arab to the south-west and the Bahmishir to the north-east; at its north-west end is the artificial Haffar channel, about 2½ miles long, cut to link the Karun river with the Shatt al Arab (p. 53). The island is bordered by date-groves and cultivation, except on the seaward side which is swampy. The large oil refinery and port of the Anglo-Iranian Oil Company are at Abadan and Bawarda in the north-west part of the island; the oil is pumped through pipe-lines from the oilfields at Masjid-i-Sulaiman, Haft-Kel, and Gach Saran. The water-supply for refinery purposes is provided by the Shatt al Arab, but the drinking-water is filtered from the less contaminated Bahmishir. There are several tracks across the island and inland of the date-groves. Abadan and Bawarda are served by motor-roads, with ferries across the Haffar channel to Khorramshahr and across the Shatt al Arab to the Fao–Basra road. Abadan has an airfield, aircraft-assembly plant, and wireless station, and seaplanes and flying-boats can use the Shatt al Arab (photo. 67).

The Bahmishir is a natural mouth of the Karun river, but most of the Karun water was diverted to the Shatt al Arab when the Haffar channel was dug in medieval times, and the upper Bahmishir is now very shallow.

Khorramshahr (Mohammerah) is on the north bank of the Haffar channel; it is the chief port of Persia and has a population of 4,500. It was taken over by the British in August 1941 and is now a naval and minesweeping base. Vessels anchor in the Shatt al Arab and discharge to the jetties by barges. Goods are distributed by steamer up the Karun to the rapids at Ahwaz in wet weather, and by motor transport in dry weather. There are motor-roads to Basra and to Tehran, and a single-track railway has recently been built to join the Iranian railway at Ahwaz. Water is obtained from the river.

The coast between the Bahmishir and Khor Musa, 20 miles east, is composed of wide tidal mud-flats intersected by shallow channels. Inland of them are extensive marshes which are usually flooded and are inhabited by wild-fowl; this district was formerly drained and cultivated, but in 1765 the dikes were cut as a protection from Persian invaders, and the plains were reduced to a swamp. Farther inland are flat plains which are liable to flood in winter but are dry in summer, with shrubs and coarse grass, and are cultivated by irrigation or used for grazing: they are inhabited by the Chaab Arabs (p. 261), who were formerly famous for their horses.

Khor Musa is a deep channel in the tidal mud-flats. It winds

inland for 50 miles, and the head is split up into many intersecting channels. It is about 1½ miles wide and has several unsurveyed branches. There is an anchorage 20 miles from the entrance. The port of Bandar Shahpur is 40 miles up the channel at the edge of a reclaimed mud island, and is the terminus of the Iranian railway to Tehran and the Caspian Sea which was opened in 1938. It is now occupied and administered by Allied military and naval personnel. Port facilities have been greatly improved to handle increasing supplies to Russia; a repair dock was constructed near by but has been removed. There are oil loading-berths 7 miles east-north-east, supplied by pipe-line from Abadan. Bandar Mashur is a small settlement on a mound in the marshes at the head of Khor Musa: it has brackish wells and dry-weather aircraft landing-ground.

Tidal mud-flats continue east of Khor Musa for 35 miles, with an extensive bay, Khor Ghazlan, in the east. Ras al Bahrgan is at the east end of the mud-flats, and is formed by the delta of the Hindian river which enters Khor Ghazlan. Inland of the flats is a wide grassy plain, with no intervening marsh belt. The plain, which contains strips of marsh in wet weather, stretches north-east for more than 30 miles to the foothills of the Khuzistan mountains.

4. The Persian Coast, from Ras al Bahrgan to Minab

General (fig. 32)

The Persian coast of the gulf will be described from north-west to south-east in four sections: Ras al Bahrgan at the head to Bushire; Bushire to Naband (including the Tangistan coast); Naband to Lingeh (the Shibkuh coast); and Lingeh to Minab, at the entrance.

The whole of this coast is backed by high limestone ranges, and the coastal plain, which varies in width, contains sandstone hills. The mountains and hills trend south-east and are very rugged; the limestone ranges have scattered shrubs and fruit-trees, but the sandstone ranges are completely barren. The coastal plain is known as *Garmsir* (winter pasture), as it is almost unbearably hot and humid in summer. There are patches of cultivation and date-groves near the villages. The population is mixed, the cultivators being Persian and the fishermen and sailors Arab.

The ports (Bushire, Lingeh, and Bandar Abbas) are all inadequate and poorly protected from the prevailing winds, and there are few anchorages along the coast. A dry-weather motor-road or track follows the coast the whole way, but communications inland are

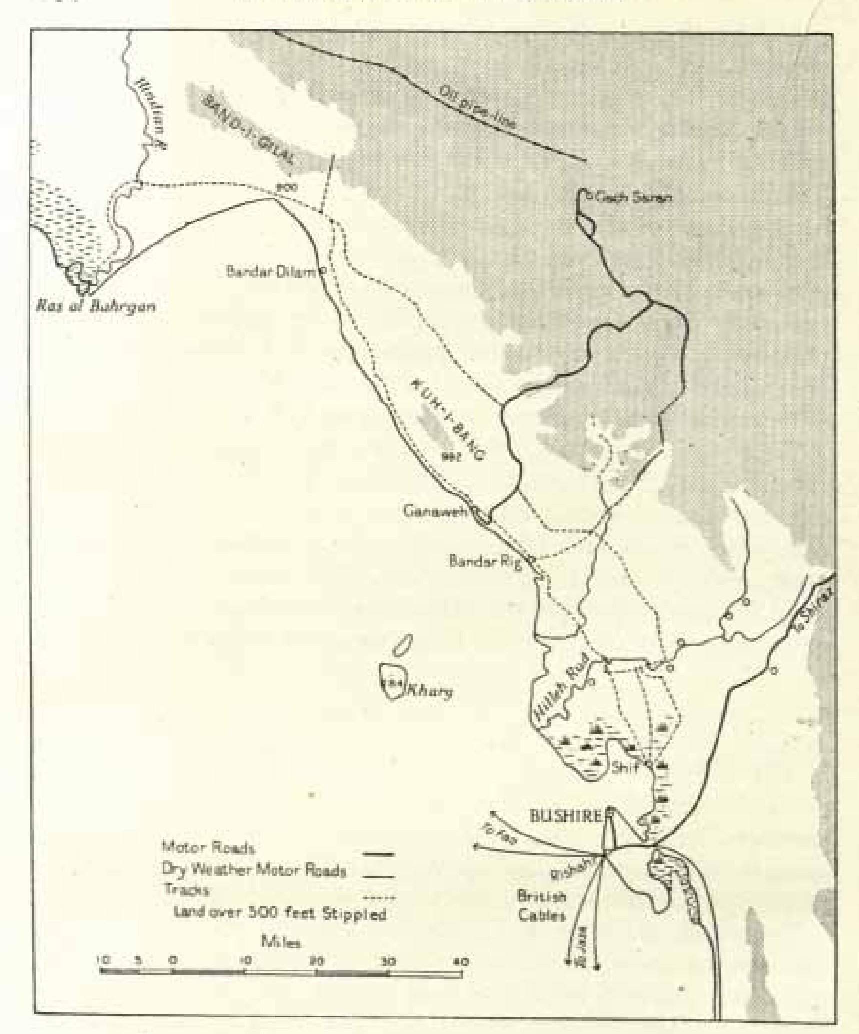


FIG. 40. *The Persian Coast: Ras al Bahrgan to Bushire*

difficult even from the three ports, owing to the many parallel mountain ranges between the coast and the interior plateau.

There are several islands off the coast, described at the ends of the appropriate sections: Kharg is north-west of Bushire; Shaikh Shuaib, Hindarabi, and Qais are off the Shibkuh coast; and Qishm, Henjam, Larak, and Hormuz are between Lingeh and Minab, in the entrance to the gulf.



67. The Oil Refineries of Abadan

68. *The port of Bushire from the air*

69. *The west side of the coastal range, Kuh-i-Bang*

Ras al Bahrgan to Bushire (fig. 40)

The coast between Ras al Bahrgan and the Bushire peninsula is low and sandy, except for a swampy bay north of Bushire. The coastal plain is between 15 and 35 miles wide and is sparsely cultivated, with date-groves near many of the villages. It contains two short ranges of coastal hills, Band-i-Gilal in the north-west and Kuh-i-Bang farther south-east (photo. 69). Inland are numerous parallel mountain ranges. Several small rivers meander across the coastal plain, the most important being the Hindian river in the north-west and the Hilleh Rud in the south-east: both are navigable for short distances by small craft and are crossed by ferries. A dry-weather motor-road runs along the coast, and there are others farther inland. There are tracks to the interior from the small ports of Bandar Dilam, Bandar Rig, and Shif, and a metalled motor-road runs inland from Ganaweh to the Gach Saran oilfield. The only anchorages are off Bandar Dilam, Ganaweh, and Bandar Rig, and east of Kharg island.

From Ras al Bahrgan the coast runs straight north-east for 30 miles, forming the north-west shore of the wide Dilam bay. Close north of the head of the bay is a sharp peak 900 feet high, the highest point in the Band-i-Gilal hills. The coastal plain is barren and impregnated with salt for 11 miles to Bandar Dilam, which has a boat creek and sheltered anchorage; it was an eighteenth-century Dutch trading-port, but is now an unimportant fishing-village.

South-east of Bandar Dilam the coast continues low and sandy, with salt creeks and isolated hillocks. The rugged Kuh-i-Bang range, which contains veins of gypsum, is 15 miles long; the highest point (992 ft.) is 3 miles inland about 30 miles south-east of Bandar Dilam.

Ganaweh is a small port with an Anglo-Iranian Oil Company depot, 40 miles south-east of Bandar Dilam; it has a jetty in a tidal creek, an aircraft landing-ground, and a wireless station; the company has built a motor-road to the Gach Saran oilfield in the mountains nearly 50 miles north-north-west. The Ganaweh district was formerly prosperous, and the ruins of an ancient city cover the ground for more than a mile inland, but the river which irrigated the plain has been diverted by an earthquake.

Bandar Rig is a small local port with a boat creek, 10 miles south-east of Ganaweh; it was the stronghold of a famous eighteenth-century pirate, whose fort was razed by British troops. Ten miles south of Bandar Rig is the mouth of a small perennial stream, and

13 miles farther south is the navigable mouth of the Hilleh Rud, which winds through a cultivated district with many villages and wells.

Between the Hilleh Rud and Bushire, 15 miles south-east, is an extensive swamp intersected by creeks, bordering a bay containing

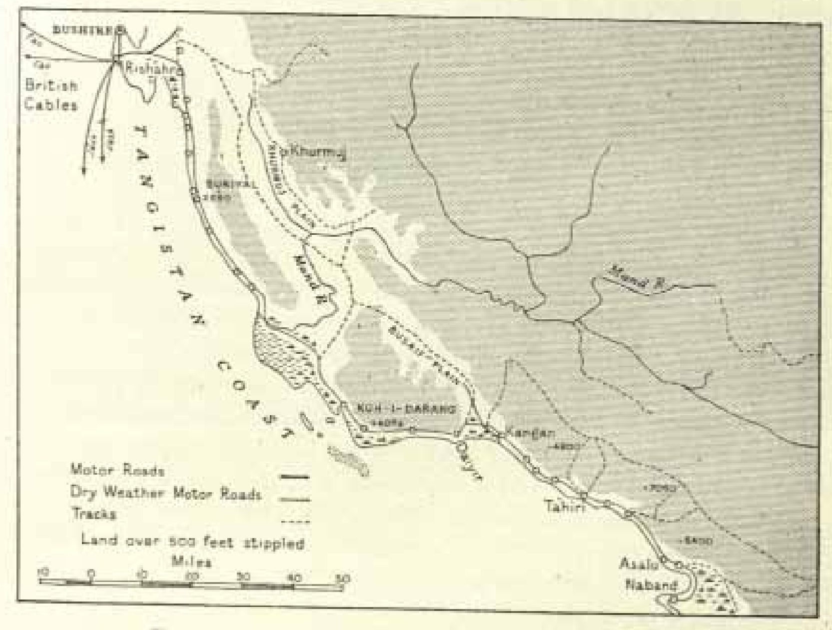


FIG. 41. *The Tangistan Coast: Bushire to Naband*

sandbanks and islets. The small port of Shif, at the head of the bay, is a sea outlet for produce of the Hilleh district. The dry-weather coastal road keeps inland between Bandar Rig and Shif.

Kharg island is 23 miles south-west of Bandar Rig and 34 miles north-west of Bushire. It is about 4½ miles long and 2 miles wide, and contains barren table-topped hills rising to 284 feet. The east coast is low and cultivated and has a sandy beach; it is surrounded by a reef. There is a village and a ruined trading-fort on the north-east extremity, dating from the Dutch occupation from 1748 to 1765. The Anglo-Iranian Oil Company has reopened some road-metal quarries in the hills. There is anchorage off the east coast, sheltered from the north-west, and landing is possible at a small pier by the ruined fort.

Bushire is the principal sea-port of Persia and is at the head of the

chief mountain route to the interior. But it has only an open roadstead and is not as important to-day as the river-port of Khorramshahr (at the head of the gulf) which now has better facilities. Bushire has been the headquarters of the British Political Resident in the gulf since 1778. The town is at the north-west end of a ridged peninsula connected to the mainland by a strip of salt marsh (photo. 68). The peninsula, which was the *Mesambria* of Arrian, is a raised coral reef 16 miles long and about 5 miles wide; the seaward edge has low cliffs. The roadstead is exposed to strong winds, and large vessels have to anchor 7 miles out and are sometimes cut off from the shore for several days in winter. Small vessels can use the more sheltered inner anchorage 3 miles north of the town. The best landing-place is at the new Customs jetty. Steamers of the British India Steam Navigation Company provide regular communication with Iraq and India, and Bushire has an airfield with services to other Persian towns and a Government wireless station. The British submarine cables to India land at a telegraph station at Rishahr, 6 miles south of the town. The route to Shiraz and the interior has to cross the strip of salt marsh, which is liable to floods in winter, but an all-weather motor-road was planned for 1937. The climate of Bushire is pleasant in winter but very hot and humid in summer, when malaria is prevalent. The water-supply is from wells in the peninsula. The population of the peninsula has decreased recently to about 10,000. The European inhabitants, who number about 30, live at Rishahr in villas among gardens and fruit-trees. Rishahr is on the site of an ancient city, and it has a ruined Portuguese fort. It is connected to Bushire by a motor-road. The south-east end of the peninsula is a low point.

Bushire to Naband (fig. 41)

South-east of the Bushire peninsula the coast is known as the Tangistan coast, though it includes the districts of Tangistan and Dashti. The coastal plain is only 1 or 2 miles wide and contains many small villages surrounded by date-groves. It is backed for the first 50 miles by a narrow mountain range whose most conspicuous peak, Buriyal (Asses' Ears), is 2,680 feet high. Between this coastal range and the main mountain range, here more than 20 miles inland, is the cultivated Khurmuj plain which is drained south-east into the Mand river. The wide valley of this river opens to the sea south of the Buriyal range, and the mud-flats and marshes of its delta form the coast for the next 20 miles. The river is navigable for some distance by small craft, and the dry-weather coastal road crosses its mouth

by a pontoon bridge. There is anchorage off the delta. South-east of this gap the coastal plain is constricted by the Kuh-i-Darang group of mountains, whose seaward edge is very steep; the coast trends south-east for 12 miles to the highest point (4,078 ft.) and is fringed



Fig. 42. *The Shibkuh Coast: Naband to Lingeh*

by marsh; it then turns east for 17 miles to Daiyir, a small grain-exporting port with anchorage close off shore and an emergency landing-ground. Kuh-i-Darang falls north-east to the Busaif plain, drained by a small stream whose marshy valley opens to the sea between Daiyir and Kangan, 9 miles east.

By this turn to the east round Kuh-i-Darang the coastline cuts inland across the trend of the coastal mountains and approaches the main ranges. From Kangan it runs south-east along the foot of the most south-westerly of the main ranges for nearly 50 miles until it cuts back at Naband bay. The mountains tower more than 4,800 feet above the sea, their highest peak reaching 7,060 feet. The coastal plain is in places less than a mile wide, and contains small fishing-villages and date-groves. Kangan was formerly a Portuguese trading-port; it has a good roadstead with partly sheltered anchorage. Tahiri, a village 21 miles south-east of Kangan, is on the site of the medieval city of Siraf, which was the chief emporium of eastern trade in the ninth and tenth centuries. The ruins extend 2 miles along the shore west of Tahiri and up the slopes of a limestone ridge between the

mountains and the sea. Precipitous ravines cross the mountains to fertile plains inland.

The coastline cuts back across the trend of the coastal mountains at Naband bay, which opens west from the marshy Gabandi plain extending east-south-east between the main and the coastal ranges. Naband village is on the south shore of the bay, near the north-west end of the coastal hills. There is anchorage in the bay, and a track leads up the Gabandi plain from the north shore, but there are only mule-tracks to the interior. Asalu, a small pearl-fishing village on the sandy north shore of the bay, has anchorage inside a reef and an emergency landing-ground.

Naband to Lingeh (*Shibkuh Coast*) (fig. 42)

Between Naband point and Lingeh, 145 miles east-south-east, the coastline trends along and across successive coastal ranges. Where the coast crosses the mouths of the valleys between these ranges, there are wide bays opening south-west, as at Mugam, Charak, and Mughu. There is anchorage in these and in other smaller bays. The coastal plain is narrow, with small fishing-villages. The dry-weather motor-road follows the coast closely the whole way. The only roads to the interior run north-west from Lingeh. The islands of Shaikh Shuaib, Hindarabi, and Qais lie off the Shibkuh coast.

From Naband point, at the south entrance to Naband bay, the coast trends east-south-east for 63 miles to Mugam, along the foot of the coastal hills. It is steep-to and has low cliffs and small sandy bays. There are good anchorages off the villages of Bustanu and Shivuh, 34 and 41 miles respectively from Naband point. The cultivated Gabandi valley, which lies behind the coastal range for the first 30 miles from Naband bay, is marshy in its lower half and produces flax for fishing-nets.

From Mugam, a large village, the coast trends south to Ras Nakhilu; it crosses the ends of a narrow valley and of two coastal ranges; there is anchorage off the mouth of the valley, which has a motorable track to a road running inland from Lingeh. The coast runs east-south-east for 17 miles from Ras Nakhilu to Chiru point, and rises steeply to the more southerly of the two coastal ranges. The more northerly range rises to 2,540 feet. Chiru village is in a small bay east of Chiru point: it has a sandy beach and good anchorage sheltered from the north-west.

From Chiru the coast trends east for 33 miles to Charak. The only anchorages are off two small fishing-villages 10 and 15 miles east of

Chiru. Charak is a walled fishing-town with a date-grove; it has a creek usable by small craft a mile to the east, and good sheltered anchorage; a track leads north.

East of Charak the coast curves south-east, forming Charak bay; it crosses the mouth of a wide salt-marsh which stretches east for

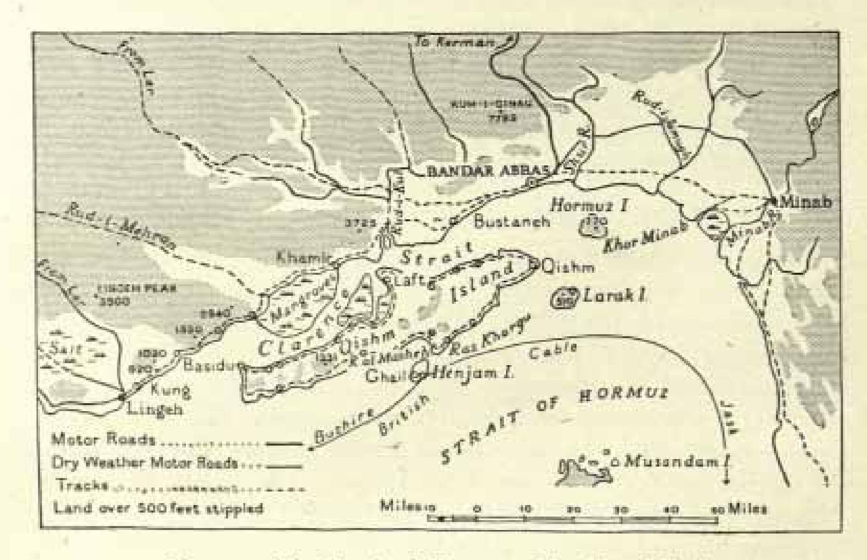


FIG. 43. *The Strait of Hormuz: Lingeh to Minab*

about 35 miles behind the coastal hills, and is fringed inland by villages and date-palms: the centre is passable by animals in summer but only by boats in winter. Charak bay is separated from Mughu bay, farther south-east, by a low broad point north of which is a volcanic hill 1,080 feet high. There is anchorage off Mughu village, on the north shore of its wide sandy bay, and a track leads north across the salt marsh. South-east of Mughu bay is Ras Bustaneh, which rises north-east to Jabal Bustaneh, a group of irregular volcanic hills with two peaks 1,800 and 1,750 feet high. Between Ras Bustaneh and Ras Shias, 11 miles east, is a wide sandy bay; it is fronted by a rocky beach and rises to the foothills of Jabal Bustaneh; there is anchorage in the west off Bustaneh village and off Ras Bustaneh. Shias bay, entered between Ras Shias and Ras Kharyu 3 miles north-east, affords sheltered anchorage and has a sandy beach. Lingeh is 3 miles north-east of Ras Kharyu.

Shaikh Shuaib island is about 7 miles south-west of Ras Nakhilu.

It is 15 miles long and 3 miles wide, and has an east–west ridge of hummocks about 120 feet high. The coast has low cliffs and a few sandy bights, and is fringed by reefs. There is anchorage to north and to south of the east end, off which is a small islet. Shaikh Shuaib has several villages and many goats are kept, but there is no cultivation.

Hindarabi island lies 4 miles south-west of Chiru point. It is 4½ miles long and about 2 miles wide. The east and west ends are cliffed, and the island is surrounded by a reef. The highest point is about 100 feet above sea-level. There is a village on the north coast with good anchorage off it.

Qais island is separated from the mainland between Chiru and Charak by a navigable strait 10 miles wide. The island is 9½ miles long and 4½ miles wide. Its coasts are sandy, with low cliffs at the east and west ends, and are fringed by reefs. The anchorage, off the north-east point, is exposed to winter easterly gales. The rocky central plateau, 120 feet high, is grazed by sheep and goats. There are several villages and some cultivation. Water is obtainable along the shore by digging, and there are rain-water cisterns. Qais was the successor of Siraf and the predecessor of Hormuz as the chief emporium of eastern trade, from about the eleventh century to the thirteenth: ruins of the medieval walled city extend half a mile along the north coast.

Lingeh to Minab (fig. 43)

The coast trends east-north-east from Lingeh for 96 miles to Bandar Abbas, crossing the ends of several unsurveyed mountain ranges and of the valleys between them. It then curves east and south-east for 40 miles to the Minab river, and is backed by a wide plain. The large island of Qishm, 67 miles long, is separated from the mainland between Lingeh and Bandar Abbas by Clarence strait. The smaller islands of Henjam and Larak lie off Qishm island, and Hormuz lies off the mainland coast east of Bandar Abbas.

Lingeh extends a mile along the shore and is surrounded by large date-groves. Many of the houses are in ruins. Inland, hills rise to 400 feet, and beyond them is the large salt-marsh which extends west for about 35 miles to Charak bay. North of the salt-marsh are the Lingeh mountains, in which Lingeh peak rises to 3,900 feet 22 miles north-north-west of the town. Lingeh has good anchorage about three-quarters of a mile off shore, a sloping sandy beach with two boat cambers, and a small tidal dock. Formerly it had a flourishing shipbuilding industry for which timber was imported from India;

but the town has declined since the nineteenth century and its population has dwindled from about 25,000 to 3,000. It has lost its former importance as a pearl market in favour of Bahrein, and it is now rivalled by Sharja as a distributing centre for the Arabian coast; its Persian trade was never large because of the difficult mountain routes to the interior. The water-supply is from forty-two domed rain-water reservoirs outside the town. A new aircraft landing-ground has been made 3½ miles west-south-west of Lingeh to supersede the old emergency ground 2 miles north-east of the town, which is used only by light aircraft. There is a Government wireless station and a British agent. In peace-time British India slow mail steamers called once a fortnight for Bombay and Basra. Lingeh has a road to Lar and Shiraz, just possible for cars, a dry-weather coastal road to Bushire, a coastal track to Bandar Abbas, and a track north-west across the salt-marsh.

North-east of Lingeh the sandy coast slopes up to an irregular group of hills whose highest point (1,020 ft.) is 3 miles inland, 10 miles north-east of the town. There is a table-topped outlier 620 feet high between it and the sea. Kung, a small town in a date-grove 4 miles north-east of Lingeh, was the gulf headquarters of the Portuguese during the seventeenth century, after their expulsion from Hormuz: the remains of their factory are south-west of the town. Kung has good anchorage, and about fifty ocean-going dhows which trade with Khorramshahr and do one trip a year to Aden and East Africa. North-east of the table-topped hill is the mouth of a valley 5 miles wide. For 17 miles beyond this the coast crosses the ends of two ridges (1,330 ft. and 2,940 ft.) of the Lingeh mountains, in the angle between which are sulphur springs. North-east of these mountains the coast forms the north-west shore of Clarence strait, which lies between Qishm island and the mainland.

Clarence strait is about 65 miles long and in the middle is constricted to a width of 1½ miles by Laft point, which projects from the north-west coast of Qishm island. South-west of Laft point the strait contains many mud islets covered with dense mangrove thickets. A large islet divides the navigable channel into two: the north-western is the wider, but almost silted up; the south-eastern is deeper, but narrow and intricate. Between the Lingeh mountains and the Khamir range, about 15 miles north-east, is the unexplored valley of the salt Rud-i-Mehran, off whose mouth a large mangrove swamp extends for 10 miles into Clarence strait. Khamir village is near a creek at the north-east end of the mangrove swamp, and exports sulphur and

millstones to Bandar Abbas. The range in which Khamir (3,725 ft.) is an important peak extends west for nearly 50 miles. East of its seaward end is the mouth of another salt river, the Rud-i-Kul, whose tributaries drain the high mountains inland: it enters Clarence strait near its narrowest part. The east part of Clarence strait has a very intricate channel, with banks and shoals, but it is navigable by moderate-sized vessels. The bare sandy coastal plain between the mouth of the Rud-i-Kul and Bandar Abbas, 31 miles east-north-east, contains irregular hills and several villages. The shore is fringed by a tidal bank. The mountains rise to Kuh-i-Ginau (7,783 ft.), 17 miles north-north-west of Bandar Abbas, with higher mountains farther inland. There is sheltered anchorage off Bustaneh village, 13 miles east-north-east of the Rud-i-Kul, on the coastal track from Lingeh to Bandar Abbas.

Bandar Abbas is an important town extending about 1½ miles along the shore. Its population is about 10,000, but varies seasonally. The town is in a bare sandy plain backed by high mountains, through which a natural route leads into the interior. There are no date-groves in the neighbourhood. Bandar Abbas has a good roadstead, sheltered except from the south-east, but ships have to anchor about 2 miles off shore; they discharge to a small pier by lighters at high tide. The climate is pleasant in winter but hot and damp in summer, when many of the inhabitants migrate to the date-groves at Minab. The water-supply is from wells east-north-east of the town and from rain-water reservoirs. Bandar Abbas (formerly Gombrun, a Portuguese trading-centre) was founded by Shah Abbas I after the expulsion of the Portuguese from Hormuz in 1622. It then became the chief port of Persia, and the headquarters of English and Dutch commerce in the gulf, until the middle of the eighteenth century (p. 263). Since then its trade has declined in favour of Bushire and Khorramshahr, which have better facilities for modern ships and better routes to the interior: Bandar Abbas is now the distributing centre only for south-east Persia. There is a British consular officer. The only industries are one cotton spinning mill and a small Danish sardine factory, which is closed at present. The lorry and caravan route north to Kerman is liable to landslides; other roads lead west to Lar and east to Minab, and there is a coastal track to Lingeh. Steamers of the British India Steam Navigation Company call weekly in normal times. The landing-ground 1½ miles north-east of the town could be made serviceable for light aircraft.

The coast between Bandar Abbas and the Minab river, nearly 40

miles east-south-east, is low and mostly swampy, with mangroves in the east. It is fringed by tidal mud-flats. There are high mountains about 25 miles inland. The salt Shur river and the Rud-i-Jamugh enter the sea along this coast. The road from Bandar Abbas to Minab keeps about 15 miles inland, but there is a track, passable only in dry weather, about 5 miles from the coast. The Minab river irrigates a fertile cultivated district, with date-groves and orchards, to which many people from Bandar Abbas migrate in the summer. Khor Minab, a salt creek 7 miles north-west of the river, is used by native craft trading in grain and fruit, and has tracks to Minab from its head. The town of Minab is 15 miles inland. Near by are the ruins of Old Hormuz, the chief port of south-east Persia until the thirteenth century: at the beginning of the fourteenth century the inhabitants abandoned the city and founded a new one on Hormuz island (p. 165). South-east of the Minab river the coast forms the shore of the gulf of Oman.

Qishm, the largest island in the Persian Gulf, lies parallel to the coast between Lingeh and Bandar Abbas, and is separated from it by Clarence strait (p. 162). The island is 67 miles long from north-east to south-west, and contains irregular flat-topped hills, with several peaks over 900 feet high; the highest peak (1,331 ft.) is 18 miles from the south-west end. Laft point and Ras Khargu project from the middle of the north-west and south-east coasts respectively. The south-east and west coasts have sandy bays backed by the irregular coastal hills; the north-west coast, which forms the south-east shore of Clarence strait, is flatter and is fringed by tidal mud-flats. The island is mostly barren and in parts encrusted with salt, but cereals, vegetables, melons, and dates are grown on fertile black loam in the north. There are many goats, antelopes, and wild-fowl, and cattle and poultry are reared. Salt is mined on the south-east coast, providing the bulk of the revenues, and there are naphtha springs. Severe earthquakes occurred at the end of the nineteenth century. The chief towns are the small ports of Qishm at the east and Basidu at the south-west entrances to Clarence strait: each in turn was a British naval station during part of the nineteenth century but was abandoned because of the summer heat and malaria. There are numerous small villages in the fertile north part and round the coasts. Qishm changed hands several times from the seventeenth to nineteenth centuries, between the Portuguese, English, Arabs, and Persians.

Henjam island lies off Qishm island: it is separated from Ras Khargu by Henjam sound, 1 mile wide. The island is 5½ miles long and 3

miles wide, and has barren hills rising to 344 feet. The north point, Ras al Masheh, has good anchorage to the north-west, a boat jetty, and a landing beach. It was formerly a British naval station, but has been handed over to the Persian Government. The island's position has strategic value as the gulf is here only 32 miles wide, so that the Arabian coast can normally be seen. Henjam sound could be used by seaplanes in good weather, but it is not suitable as a seaplane base. Henjam has cables to Bushire and Jask; the cable to Bandar Abbas is now broken. There are rain-water tanks at Ras al Masheh, and good wells at Ghail village, 4 miles south-west. The island contains valuable salt-mines. There are two small pearl-fishing villages, Ghail and Henjam, with date-groves. A former city on the north coast was destroyed by pirates.

Larak is a barren island 6 miles south-east of Qishm town. It is 6½ miles long and 4½ miles wide, and has rugged hills rising to 510 feet. It is surrounded by a reef. There is a fishing-village on the north coast with exposed anchorage off it, and the ruins of a Dutch fort near by. There are rain-water cisterns, but water is scarce.

Hormuz island lies about 11 miles south-east of Bandar Abbas and 23 miles west of the mouth of the Minab river. The island is about 5½ miles long and 4½ miles wide. It contains barren salt hills about 300 feet high, which are encrusted with many different-coloured minerals, and a few white peaks rising above 700 feet in the centre. The hills fall steeply to the sea except in the north, where there is a low point and a shelly plain, about 1 mile wide. There is sheltered anchorage off the north coast. Red iron oxide is mined by the Persian Government: more than 7,000 tons were shipped to Britain in 1936, out of 13,000 tons exported. The city of Hormuz was founded at the beginning of the fourteenth century when the entire population of Old Hormuz emigrated from the mainland. For two centuries it was the chief emporium of eastern trade and the centre of an empire, though all its water and supplies had to be imported. It was captured by the Portuguese in 1507 and remained their headquarters in the gulf from 1514 until 1622 (p. 255), when they were expelled by the English and Persians. The city then declined; its ruins cover the north coastal plain, and those of the Portuguese fort are on the point. A small fishing-village is now the only settlement.

CHAPTER IV

CLIMATE, VEGETATION, AND FAUNA

CLIMATE

THE shores of the Persian Gulf, together with parts of Mesopotamia, form in summer one of the hottest and most oppressive parts of the world. In winter the country is colder than is normal for the latitude. The topographical trend and height of the mountains to the north and north-east, with the Anatolian and Persian plateaux beyond them, the depression of the Persian Gulf to the south-east, the arid Arabian peninsula to the south, the Hamad and the Mediterranean beyond the Syrian mountains to the west—all these exert their influence on the climate of Iraq. Thus the prevailing winds throughout the year are northerly in origin, coming from the southward extension of the Eurasian high-pressure system in winter, and drawn towards the low-pressure system of northern India in summer; they become north-westerly in Mesopotamia because that is the trend of the Persian barrier; they are remarkably constant and dry in summer, because they can gather no moisture except from the marshes in the south; and they become hotter as they pass south-eastwards. They are, however, interrupted in winter by depressions travelling eastwards from the Mediterranean, and during the passage of these depressions falls almost the only rain that the country receives.

There are three climatic regions: the western and southern deserts, the Assyrian and Mesopotamian plains, and the mountains. Conditions in the deserts are much the same throughout except for a gradual decrease of altitude eastwards, but the middle region is affected by local topography and proximity to mountains, marsh, and sea; altitude is the chief factor in causing differences in the mountains.

Throughout the country there are two pronounced seasons, summer and winter, the 'hot weather' and the 'cold weather'. Spring and autumn are very short. Summer begins in May and lasts until October. The heat is intense, the sky cloudless, the atmosphere dry, and rain extremely rare. The prevailing north-west wind, the *Shamal*, is strong by day but lulls to a breeze or drops altogether at night; though a hot wind, it brings relief because of its dryness; water, for instance, may be kept cool in Persian filters or canvas bags by the high rate of evaporation, and the pores of the human skin act in the same way. At Baghdad the temperature rises above 100° F. on almost

every day in July and August, but the nights are comparatively cool (mean daily minimum July 78° F.). The inhabitants therefore build their better houses with an underground room (*sirdab*) where they pass the heat of the day, but sleep at night on the flat roofs to benefit by the fall in temperature (p. 349). Generally in the extreme south the day temperatures are not quite so high, for the wind may be cooled by the marshes, but the night temperatures are often higher than in the north. Away from the towns there is less relief from the heat; the scanty vegetation is burnt up by the fierce sun, the sky pales from the dust in the atmosphere, and mirage after 9 a.m. reduces visibility to a few hundred yards. During the War of 1914–1918 some relief was obtained from the heat by excavating pits beneath the tents, thus improvising a kind of *sirdab*; but these, like the trenches, were apt to harbour sandflies; dark glasses, spine-pads, and even umbrellas helped to mitigate the heat and glare, especially among those whose work was on the rivers.

Autumn is more marked in the north than south of Baghdad, but it is everywhere very short. Winter comes suddenly and lasts from November to April. North-west winds still prevail, but they are weaker and are frequently interrupted by depressions from the Mediterranean; with the south-east winds (*Sharqi*) which blow in front of them come cloudy skies, rain, and cold. In lower Mesopotamia rainfall is about 5 inches on the average, but some winters are much wetter than others. The rain is often heavy and unpleasant while it lasts, and it quickly turns the deltaic alluvium into a morass of sticky mud, in which all forms of transport become bogged (photo. 70). The temperature falls greatly during the night, so that the relative humidity rises. Frosts may occur in any of the five months November to March anywhere in Iraq, except perhaps in parts of the extreme south, where Shuaiba has only once recorded 32° in November; these frosts coming after rain accompany the cold north-west winds which follow in the wake of the depression. Snow has been known to lie in the plains for several days. The winter may be fairly severe in the north, and at Mosul the temperature on one occasion remained below freezing-point for nine days. Every year snow covers the Persian and Kurdish mountains, where the total precipitation exceeds 40 inches (photo. 71).

Spring, which occurs during April, is almost as fleeting as autumn; it lasts for less than a month and is noticeable for a slight rainfall, generally accompanied by thunder, and for a change in the desert colouring. For a few days, occasionally for a few weeks, the desert is

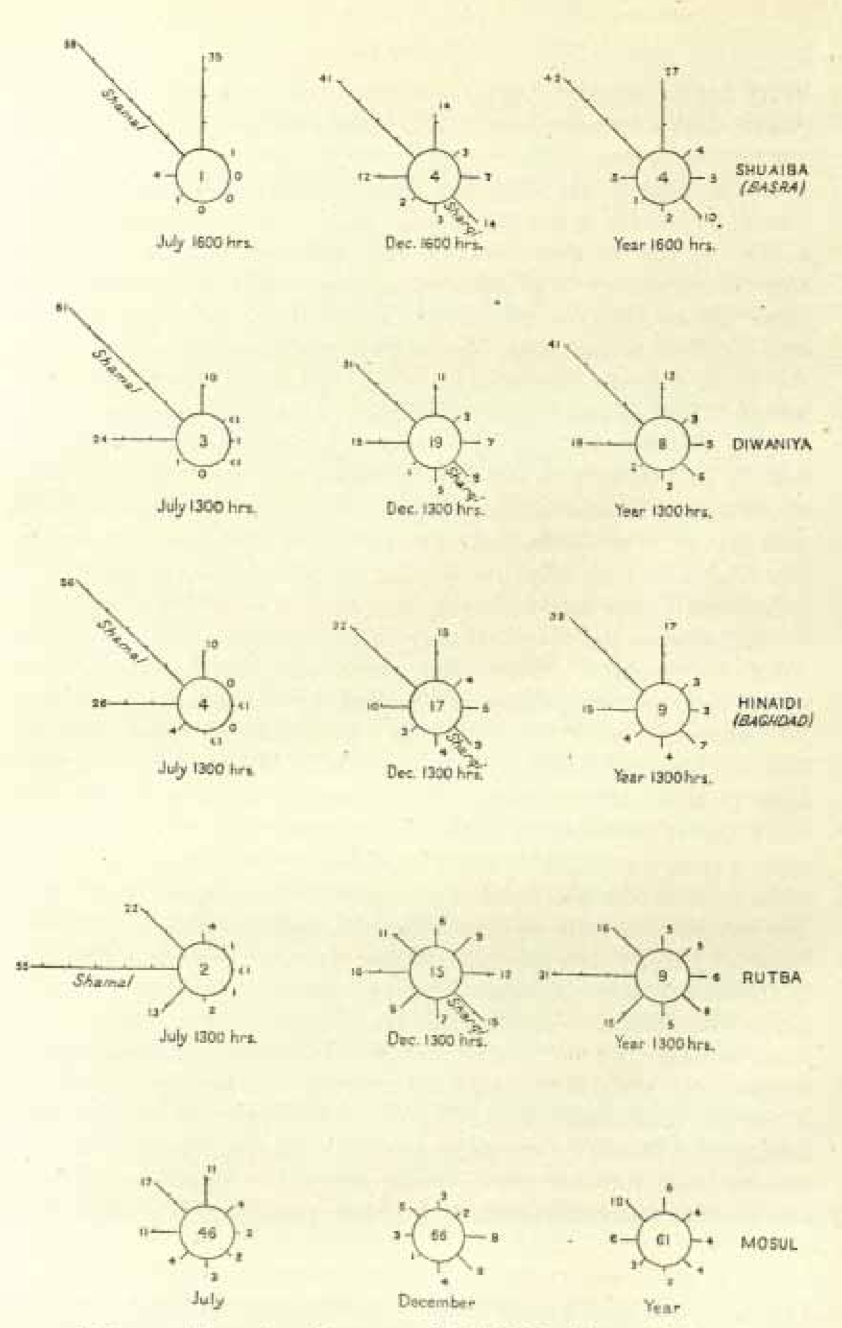


FIG. 44. *Percentage frequency of Wind Directions and of Calms (central figures)*

flushed with a faint tinge of green, marking a change from the brown of winter to the dusty drab of summer.

The notes that follow are based mainly on the observations of the few stations given below. The Tables given in Appendix B are mostly from official manuscript records. They do not yet cover a period long enough to be conclusive on many points, and there are only rainfall records in the mountains. Since 1938 a new station at Basra Airport (Maqil) has been set up. Figures are given for 1938 and 1939 in the *Statistical Abstract 1940*, but are only occasionally referred to here, as the information is incomplete and not always accurate.

Region	*Station*	*Alt. in feet*	*Years of observation*
Lower Delta	Shuaiba[1] (near Basra)	60	9–18 (1922–1939)
Mesopotamian	Diwaniya (Euphrates)	70	12 (1928–1939)
plains	Hinaidi (Baghdad)	110	16 (1922–1937)
Assyrian plains	Mosul	730	6–15 (1922–1936)
Western Desert	Rutba	2,020	10 (1928–1937)

Pressure and Winds (figs. 44, 45; Table I)

In winter the high-pressure system of central Asia extends southwards into Persia, and the gradient is south-westwards to Iraq. This guides a general flow of air from the north-east towards Arabia, thus intensifying the theoretical trade-wind circulation; but the gradient is broken by the Persian Gulf, and air is drawn from the moving mass down the Mesopotamian trough, thus causing a cold north-westerly wind in winter over most of the country. In the Syrian desert south-west of the Euphrates cold air from local high pressures over western Arabia contribute a predominant westerly wind. None of these winds are constant or uniform, being frequently interrupted by depressions moving eastwards from the Mediterranean, particularly in December, January, and February. The warm winds in front of the depressions are south-easterly (*Sharqi*) and they break up the normal winter circulation. The north-west winds in rear of the depressions are cold and very dry, and they bring clear skies and lower temperatures; they are occasionally strong, but more usually very light. In the gulf area the *Sharqi*, in places known as the *Kaus*, is sometimes followed by a strong south-westerly gale (*Suahili*) which lasts for a few hours and is dangerous to small craft.

[1] The meteorological station is always spelt Shaiba. The spelling used here (Shuaiba) is that shown on the quarter-inch maps of Iraq and has been used throughout this volume.

In summer the pressure gradient changes. By June it is markedly south-eastwards towards the belt of low pressure over the Persian Gulf, which is an extension of the 'low' centre formed over northern India. These conditions bring a mass of air from the north-west, guided by the relief and uninterrupted by outside disturbance. The wind-roses shown in fig. 44 indicate the preponderance of north-westerly or westerly winds throughout the year.

The change of gradient brings a marked increase both in frequency and in strength of the north-west wind during the summer, which then receives the special name of *Shamal*, the Arabic word for 'north', a name not given to northern or north-western winds at other times of the year. The *Shamal* normally begins in June, quite suddenly, bringing considerable relief, not by lowering the air temperature, but by increasing the rate of evaporation from the skin. The change is very noticeable in central Iraq and is strongly reflected in the meteorological records. Thus at Diwaniya the percentage frequency of north-west winds in the afternoon increases from 39 in May to 58 in June, 61 in July, and 59 in August; at Hinaidi (Baghdad) the figures are 27 (May), 51 (June), 56 (July), 56 (August) (Table I).

Throughout June, July, and August, in fact, atmospheric conditions are very steady. At Baghdad the *Shamal* blows on nine out of every ten days, generally directly from north-west, but occasionally from west or north. There are, however, local differences throughout the country. At Mosul there is a high proportion of calm days throughout the year, though fewer in July (46%) than in December (66%). In the western desert the wind is predominantly westerly rather than north-westerly, though the summer increase from both quarters retains the name of *Shamal*. A curious local phenomenon in the Basra area is the diurnal change, the prevailing west or north-west winds of the early morning regularly veering to a more northerly quarter in the afternoon (fig. 45); this phenomenon occurs throughout the year.

Occasionally the *Shamal* arrives late. June can then be the most oppressive month of the year. In 1916 it was delayed in the area round Kut al Imara until 20 July, before which date very high temperatures between 120° and 128° had been recorded for several days at Army headquarters at 'Arab village'. Great relief was experienced from the *Shamal* on this occasion, and the sickness-rate at once fell.

Shuaiba has records of wind speeds covering a period of ten

years. These show no great variation throughout the year in the early morning. On most days, however, the wind rises during the day, a feature particularly noticeable during the *Shamal* in June and July, when the mean wind speed rises from 6 to 15 knots and from

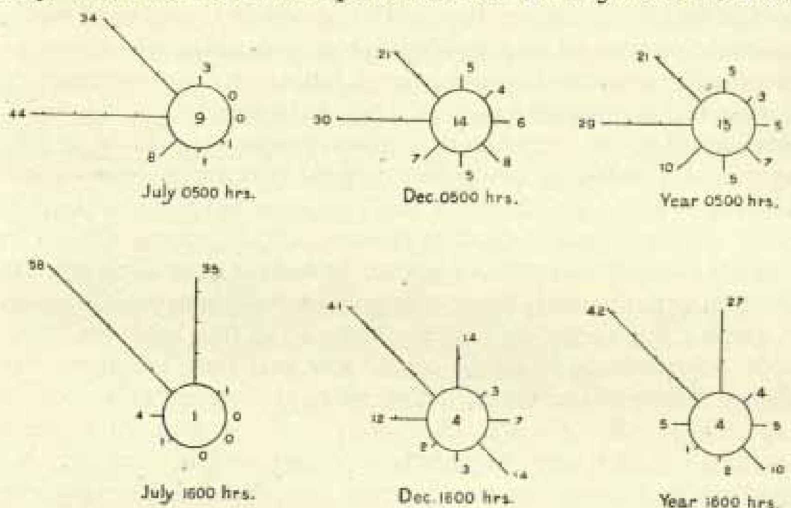


FIG. 45. *Percentage frequency of Wind Directions at Shuaiba at 0500 hours and 1600 hours, showing diurnal veering northwards of westerly winds, and diurnal decrease of Calms, as shown by the figures inside the circles*

7 to 14 knots respectively between 5 a.m. and 4 p.m. During each of these months there is an average of 10 days on which at some time or other the wind reaches 32 miles an hour. This diurnal increase of wind speed, noticeable to a less extent in other parts of Iraq, is partly responsible for the starting time of dust-storms (p. 180).

The *Shamal* has a considerable effect on river navigation and causes much delay, especially to sailing-vessels. Normally it ends early in October, but its end is less regular than its beginning, and in 1915 it lasted well into November, causing great difficulties to navigation when the Tigris was at its lowest.

Temperature (Table II)

Temperatures are characterized by a wide seasonal range. There is no great difference between one lowland region and another except in the physiological effects, into which enter other factors such as humidity (p. 174), but altitude considerably reduces the heat

in the Kurdish mountains in summer. During the few years since regular official observations have been made, the highest recorded absolute temperature has been 125° F., at Shuaiba near Basra and at Diwaniya on the Euphrates, both in August, which is normally the hottest month throughout the country, except in the extreme north, where July seems to be very slightly hotter than August. From the records Shuaiba and Diwaniya generally appear to share the maximum during the six summer months. But according to the *Statistical Abstract 1940*, the temperature at Mosul reached 124° F. on 21 July 1937, and, as stated above, in July 1916 the temperature rose to 128° in front of Kut.[1] On the other hand, Shuaiba has recorded 100° in every month except December, January, and February, that is, in 9 months against 7 months elsewhere. Shuaiba is generally quoted as illustrating Basra, but in fact the latter is generally appreciably cooler. Perhaps it is too early yet to state which part of Iraq holds the unenviable reputation of being the hottest spot, and since experience has shown that life becomes a burden when the mercury rises above 120°, the actual summit reached is an academic matter; the great practical problem everywhere is how to keep cool in summer. No one lives in a Stevenson screen where the official air temperatures are taken.

A few deductions may be drawn from the records. North of the lower delta, stations have the advantage over Basra by enjoying cooler nights, a feature most marked in the Mosul area and in the western desert; also the *Shamal* is drier because it has passed over no expanse of marsh, and therefore has a greater cooling effect on the human body. Thus the daily mean at Shuaiba exceeds 90° in each of 4 months (June to September), at Hinaidi (Baghdad) in each of 3 months, at Diwaniya and Mosul in only 2 months, and at Rutba no month has a higher mean than 87° (August). The western desert being at an elevation of 2,000 feet rarely records day temperatures as high as those in the delta lands, and the nights are also cooler; south-west of Basra, where the desert is lower, day temperatures are as high as in the delta, if not higher.

January is the coldest month of the year, but the nights of December, January, and February are generally cold, and frosts may occur almost anywhere after the beginning of November. The lowest official temperature is 10° F. at Rutba, but unofficial and possibly incorrect records give the same figure for Baghdad, and on one occasion Mosul is said to have registered 0° F., though the official

[1] Recorded in an improvised Stevenson screen at Army headquarters.

minimum is 12° (3 Jan. 1925). There is little doubt that the south is considerably warmer in winter than the north or west, and at Shuaiba there is only one official reading below 20°.

Many winter days are warm, and this warmth by day emphasizes the cold by night. The day temperature at Shuaiba has reached 88° in December, 81° in January, and 85° in February. Mosul has, however, not recorded more than 66° in January and this is exceptional. It is known that lower temperatures than those at Mosul occur in Kurdistan, but there are no official figures.

The difference between the mean monthly maxima and the mean monthly minima at Shuaiba varies between 40° and 55°, being highest in the transitional seasons of spring and autumn. Probably the difference is much the same elsewhere. Exceptionally the night temperature has fallen 60° below that of the preceding day temperature. The fall in temperature is very rapid after sundown, and chills are easy to catch unless precautions are taken.

The suddenness of change from summer to winter and vice versa has been mentioned above. Normally winter comes in November, but occasionally the heat lasts into that month. At Hinaidi the mean daily maximum in November is 76°, but exceptionally the day temperature reaches 90°, though frost at night has also been known there in the same month. During the War of 1914–1918 tents were required by the fighting troops to keep out the cold and wet in winter and to ward off the sun in summer; in November they were required for both purposes; but single-fly tents, though better than nothing, are little use for either. In the great heat of early July 1916 in front of Kut the temperature recorded in a double-fly tent was about 5° above the official maximum shade temperature (128°) at Army headquarters, and that in a single-fly tent on the opposite side of the Tigris, and inland from the river, 8° to 9° higher (141°).

Humidity (Tables III, IV)

Relative humidity is low in summer and high in winter, and higher in the early morning than later in the day. This is a natural consequence of the great ranges of temperature, and it applies to all the five stations in different degrees. Unfortunately the mean figures for the month do not tell the whole story, and there are neither sufficient stations nor altogether suitable statistics available to deal fully with the physiological effects of humidity.

The Persian Gulf and its coasts are notorious for their 'damp' heat in summer. At nearly all its ports the wet-bulb temperature exceeds 78° from June to September, both morning and afternoon. At Bahrein on August afternoons it averages as much as 87°, and when the dry-bulb (air) temperature is between 95° and 100° the wet-bulb thermometer may read only two degrees lower, especially if the wind drops to a calm. The oppressive character of this summer climate is shown also by the relative humidity, which averages 70 per cent. with little diurnal variation. As an example of the effects of this oppressive heat may be mentioned the experience of a troopship bound for Basra at the end of August 1917, when the sea-temperature was near blood-heat and the atmosphere nearly saturated. In consequence, there were many cases of heat-stroke, the number of deaths being increased by the failure in the supply of ice.

Conditions inland begin to change almost at once. At Shuaiba, south of Basra, the mean relative humidity for the months from June to September is as low as 27 per cent., but there is a fairly wide day-to-day variation from the monthly means. On some days the air is almost completely dry, a condition brought about by a strong wind from the desert quarter; on others the air may feel 'damp' for some days on end, when it is calm and the air has picked up moisture from the marshes. The river front at Basra and the airport may be as much as 6 degrees cooler than Shuaiba, but much 'damper' (Table IV).[1] It is at such periods that there is danger of heat-stroke because, though the relative humidity may not rise above 50 per cent., very high air temperatures are recorded (p. 172) and the wet-bulb temperature approaches blood-heat. In such a climate a comparatively low relative humidity may have a 'damper' significance on a calm day than the higher monsoon figures of Bombay and Calcutta (85 to 95%).[2] The important point is the difference between the amount of vapour actually present in the air (that is, the absolute humidity) and the amount contained by saturated air at body-temperature. This difference is the physiological saturation deficit. The smaller this deficit, the less vigorous the evaporation from skin and lungs, and the 'damper' and the more 'oppressive' the atmosphere feels. If the air is stagnant, the local deficit in contact with the body becomes

[1] The figures in Table IV are not strictly comparable for this argument, but they are significant of the general conditions.

[2] Vapour pressure at 110° F. with relative humidity at 50% is about 46 mb. and is representative of the worst conditions at Basra. Vapour pressure at 90° F. with relative humidity at 90% is about 43 mb. and is representative of the steamy heat of Bombay in monsoon breaks.

very small and conditions favourable to heat-stroke occur. For the medical aspects of heat-stroke, see Chapter IX, p. 428–30.

Up country beyond the lower delta the relative humidity in summer is lower, particularly in the early morning. The difference in comfort is much more marked than appears from the mean figures. This is caused in part by the fact that the *Shamal* is stronger and more regular, and partly by there being less standing water. Everywhere the *Shamal* brings relief, because it prevents stagnation of the air and so increases evaporation from the body. Under canvas some relief can be obtained by opening the lower parts of the tent in order to obtain a draught of hot dry air.

Precipitation (fig. 46; Tables V, VI, VII)

Rain. Almost the whole rainfall of Iraq occurs in winter or spring and accompanies the depressions crossing the country from the Mediterranean. Of the five stations of which there are continuous records for any length of time, Mosul alone has more than 6 inches, and all indicate how arid are the plains throughout the six summer months (Table V). December, January, and February are the wettest months, but except in the north the mean of each of these three months nowhere reaches 2 inches.

During the last few years the rainfall has been recorded at a number of places by observers in different government departments (Iraq Railways, Posts and Telegraphs, Police, &c.), and by the Iraq Petroleum Company. From these (Table VI) it is possible to construct a provisional rainfall map (fig. 46). Precipitation in the Kurdish mountains is considerably higher than in the plains, Zakho, Amadia, Ruwandiz, and Halabja all recording an average of more than 40 inches for the 4 years from 1936 to 1939. Travellers in the mountains write of rain falling on every day for two or three weeks on end in winter. This higher rainfall causes the sudden rises in volume of all the left-bank tributaries of the Tigris which are so marked a feature of their regimes (p. 26).

The normal number of wet days is not high even in winter, so that rain when it comes is fairly heavy. But the two days which have recorded the heaviest downpours both fell outside the three normally wettest months: 4·5 inches in 24 hours at Diwaniya in May and 3·4 inches in 24 hours at Mosul in November.

Snow. Snow and sleet have occurred throughout Iraq at different times, but none of the four stations average more than two days'

FIG. 46. *Mean Annual Rainfall in inches*

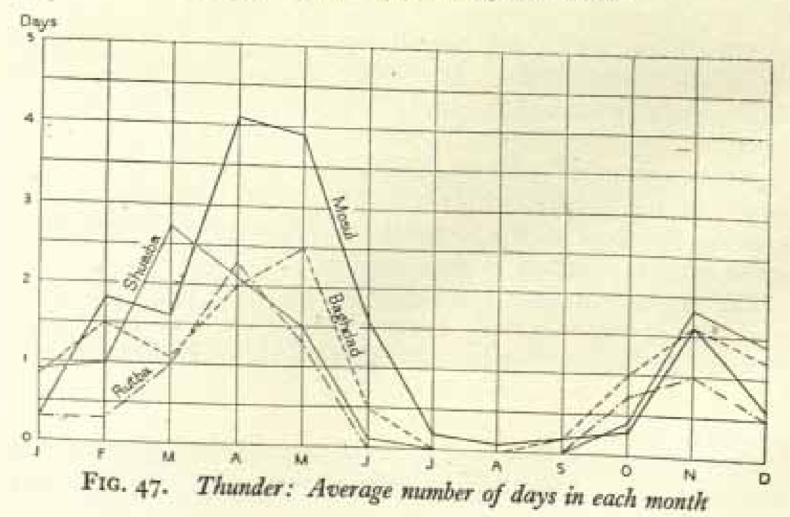


FIG. 47. *Thunder: Average number of days in each month*

snowfall in a year.[1] In winter every year snow falls on the Kurdish and Persian hills, and in the higher parts foul weather with snow may last a fortnight or longer. One traveller at the end of January records continuous snow-cover on northward-facing slopes down to 3,500 feet, and deep snow on sheltered plateaux at 5,000 feet (photo. 71). Southern aspects at this altitude would clear after two days' sunshine, but passes are often blocked to animal transport. January and February are apparently the months of greatest snowfall in the higher mountains. Movement in March and early April is much impeded by flooded rivers caused by the melting snow.

Thunder is more marked from March to June than in other months and is commoner in the north than in the south (fig. 47). It is a rare occurrence after the coming of the *Shamal* until November. It is sometimes heard without rain being precipitated, but rain from April to June is generally accompanied by thunder, and occasionally such storms are violent.

Hail is both a winter and spring phenomenon. It is not common, but occasionally the stones are remarkable for their size.

Dust-storms (fig. 48; Table VIII)

The desert nature of Iraq favours the occurrence of dust-storms because the alluvium is easily broken up by aridity and a hot sun into fine particles of dust. A dust-storm is defined by two criteria, a wind-force of 4 (Beaufort scale) or more and a decrease of visibility to less than 1,100 yards caused by fine dust. The true sand-storm (*haboob*) of the Sudan is very rare in Iraq, but dust-storms are common and sometimes violent. In very severe dust-storms visibility may be reduced to 20 yards (photo. 72).

Dust-storms may occur at any time of the year, but they are classified seasonally into two types: winter dust-storms from November to May and summer dust-storms from June to October. Winter storms are generally associated with the westerly atmospheric depressions (p. 169) or with thunder-storms. If the ground has dried sufficiently after the previous depression, dust may rise over a wide area in front of the oncoming depression as the wind freshens from the south-east. Thus many winter dust-storms come frequently from this quarter. Others caused by thunder-storms are much more

[1] The figures in Table VI for snow, thunder, and hail are taken from the *Statistical Abstract 1940* published by the Ministry of Economics in Iraq. The number of years of observations is not stated.

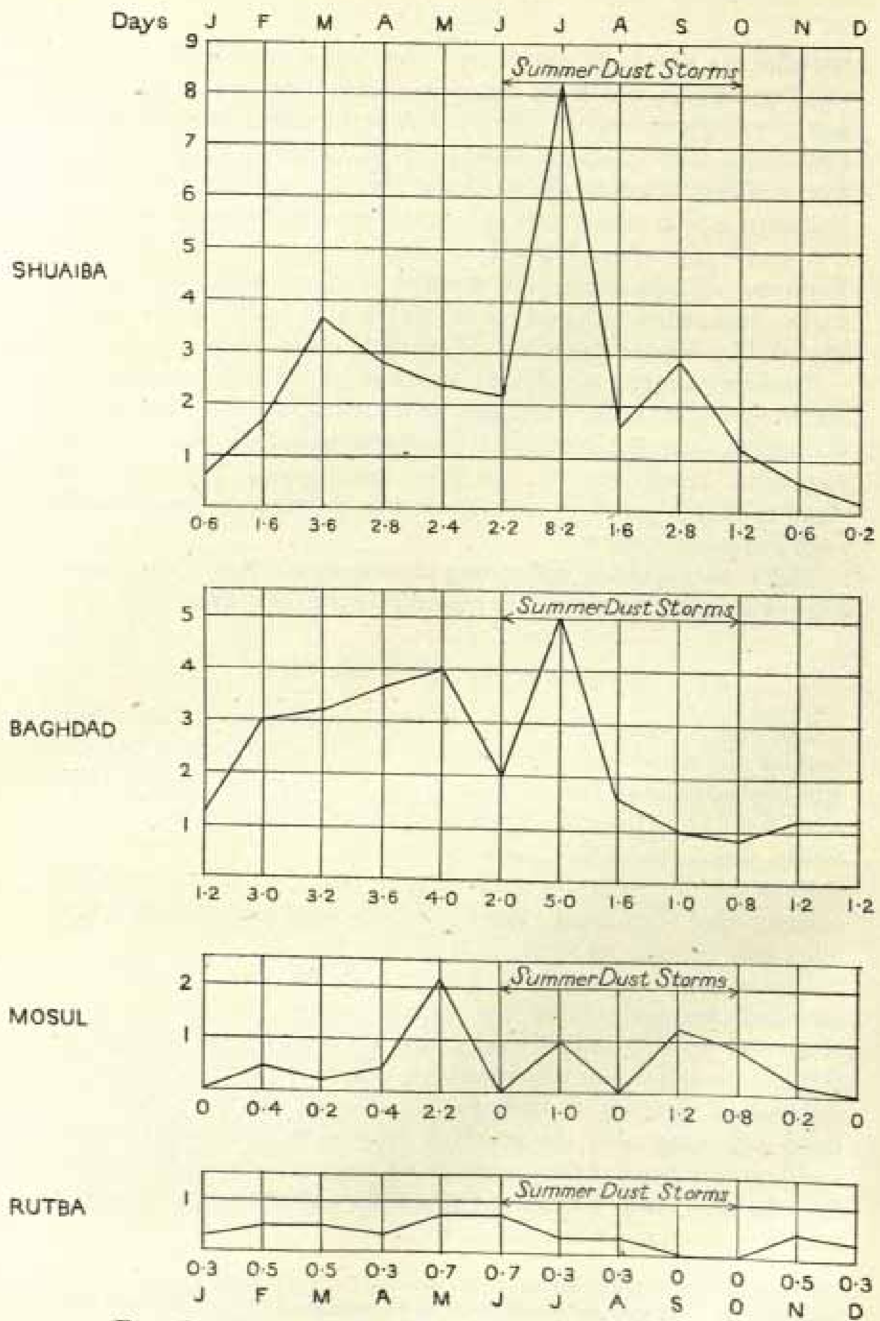


FIG. 48. *Dust-storms: Average number of days in each month*

variable in direction, but few winter dust-storms affect visibility for any distance down the Persian Gulf. Rainfall during this period much reduces the frequency of dust-storms, and rain together with spring vegetation probably accounts for the low frequency of winter dust-storms in the north.

Summer dust-storms appear to be caused by small variations in the pressure gradient, particularly during the onset of the *Shamal* (p. 170), and all summer dust-storms come from the north-west quarter. The storms tend to increase in frequency and severity towards the south-east, because of the increasing 'fetch' of the prevailing north-west wind in summer, and dust may be carried down the Persian Gulf at this season, affecting visibility at sea. It may rise to over 10,000 feet, and from the air looks like a dense bank of cumulus, visible 30 miles away.

In summer the first sign of a dust-storm is usually an abnormal glare or dazzle round the sun, with dust rising in patches from the ground, so that decrease in visibility is progressive. In winter, particularly when associated with thunder-storms, the reduction of visibility is much more sudden and the onset more violent; but the severity of dust-storms is dependent on a number of factors. Thus in central and southern Iraq it appears to be proportional to the wind velocity at about 1,000 feet, and differs according to the time of day at which the storm starts.

The severest storms occur in northern Iraq in October, in central Iraq in March, and in southern Iraq in June and July. The months of maximum frequency are May in northern Iraq and July in central and southern Iraq (though they are also common here from February to June). In the western desert (Rutba) they are surprisingly infrequent throughout the year; the reason can only be that the desert surface is harder, more stony, and more difficult to break up into fine particles of dust.

A curious and noteworthy feature is that dust-storms in Iraq often occur about the same date in successive years; for instance, a dust-storm or thick dust-haze was recorded at Hinaidi on 29 March every year from 1929 to 1935, that in 1935 being one of the most severe ever recorded. During this period the dates of maximum and minimum dust-storm frequency between March and August were:

Maximum frequency . . .	29, 30	March
	11, 21	April
	23	June
	3	July (Shuaiba 3, 6, 13, 21, 25, 31)

Minimum frequency . . 13, 15, 28	March
23, 29	April
5, 10, 16	May
7	June
9, 10	July

The time of start of dust-storms is largely influenced by diurnal changes of wind speed (p. 171). They normally start about 8 a.m. in summer and about 10 a.m. in winter, that is, about three hours after sunrise. They generally end in the afternoon, but occasionally persist overnight, especially in March and July in central and south Iraq. Between March and June they are liable to begin at night, and are then almost always associated with thunder-storms.

Dust-devils are among the minor hot-weather manifestations. They are very common and occur with light winds at any time of the day. They are rapidly moving spirals of dust, originating in a whirling dust cloud near the ground and curling upwards to thin out to a diffuse dust cloud 600–700 feet above ground. They often appear and vanish quite suddenly, and though locally violent do little if any damage, and so are not recorded.

Visibility (Table VIII)

Mirage is the chief obstacle to visibility in Iraq. In all hot countries, where the ground is raised to a high temperature, the air in contact with it is much hotter than that a little distance above the ground, so that the density of the atmosphere rapidly changes from the ground upwards. This change in atmospheric density bends and distorts the line of sight, and any object above the horizon of the eye appears below its true position. A common form of mirage is the appearance of water in a waterless desert, caused by an apparent lowering of the sky below the horizon, the distortion and convection currents giving to it the semblance of ripples. The actual horizon becomes very much distorted, and the outline of hills, rocks, and other objects may be completely altered or lost altogether. Objects may be distorted and magnified through convection currents, some appearing nearer, and all kinds of fantasies play tricks with the sight and with the imagination. Iraq is particularly bad for mirage and refraction difficulties, and in the War of 1914–1918 many strange incidents were reported. At the battle of Shuaiba (p. 275), for instance, the Turks are said to have altered their tactics to meet the threat of British reinforcements seen through the mirage, though these were non-existent. Mirage is absent in the early morning before the earth has heated up, but



70. *Mud. Indian transport cart bogged near 'Wadi', left bank of the Tigris, January 1916*



71. *Snow. Near Birissiya, c. 2,500 feet, Rukuchuk valley, Iraqi Kurdistan, 8 February 1918*

72. *Dust. A dust-storm near Samarra, 1936*





73, 74. *Mirage. Types of artillery observation ladders rendered necessary by mirage*

becomes marked about three hours after sunrise; at its worst it may reduce visibility to a few hundred yards, but its worst effects are mitigated by ascending a very few feet above ground-level. In the early days of the War of 1914–1918 artillery observation was carried out from ships; later, batteries were supplied with observation ladders or extensions to limber-poles (photos. 73, 74). There is, of course, no difficulty from mirage in observation from aircraft.

Fog is rare in Iraq, occurring on the average 6 days a year at Shuaiba, 8 or 9 days at Baghdad, 4 days in the western desert at Rutba, and 14 days at Mosul. It is commonest in December and January.

Shuaiba has also recorded visibility over a period of nine years at 5 a.m., that is, before mirage becomes effective. Most dust-storms also occur later in the day. The figures probably include fog, mist, and dust-haze. The average number of days on which visibility has fallen there below 2 nautical miles is only 11, fairly evenly distributed throughout the year.

Sunshine and Cloud (Table IX)

The hours of sunshine are very high. There are records covering six years between 1922 and 1936 for Mosul, where the average number of hours per day throughout the year is 8·9. June, July, and August all have daily means of over 12 hours, and are practically cloudless.

More recently sunshine records have been taken at both Mosul and Baghdad, where for the year 1940 they are given as percentages of the maximum amount possible. These show higher figures for Baghdad than for Mosul in every month.

All five stations record the amount of cloud throughout the year. The average cloud-cover for the winter is perhaps rather higher than would be expected for the small amount of precipitation, but otherwise there are no special points to notice.

VEGETATION

IRAQ, within its present political boundaries, includes three main regions: (*a*) the ancient Mesopotamia lying between the rivers Tigris and Euphrates; (*b*) a mountainous area to the north-east, forming part of the Kurdistan ranges; (*c*) a part of the Syrian desert, an arid inhospitable region west and south of the Euphrates.

The climate is semi-arid, with a rainfall which, though moderately plentiful in the northern and north-eastern districts, especially in the

mountains, decreases rapidly southwards towards the Persian Gulf. In the deserts to the west and south, rainfall is low and sporadic. Temperatures tend to be high with long, hot, dry summers; the winters are short, more or less wet, with frequent low temperatures at night.

Soils. Little information about soils is available, though some studies have been made on those of lower Iraq. The alluvial soils of this area are chiefly calcareous loams, with occasional sandy patches. Their richness in lime is caused by the light calcareous silt brought down from the northern highlands. Here and there are saline tracts, found chiefly in depressions as a result of bad drainage and rapid evaporation of successive river floods, or on sites of abandoned cultivation where constant irrigation and inadequate drainage have produced the same effect. Such areas, when excessively saline, are quite incapable of supporting plant life; but with these exceptions, the soils of the whole alluvial plain of lower Iraq are comparatively uniform, differing slightly in texture and fertility, but always conforming to the same general type—a silty calcareous loam. When watered they are usually remarkably fertile since they abound in mineral salts, although the nitrogen content is sometimes dangerously low.

Soils rich in gypsum are found over wide areas in Iraq, e.g. in the Ghurfa desert north of Diltawa and in many parts of the Jazira desert. In other parts of the Jazira the soil is composed of gravel or marl with broad sandy stretches.

In the foothills and Assyrian plains in the north some very heavy soils are encountered, such as the stiff red soil of the Erbil plain. This soil contains relatively little gypsum and is much more fertile than some of the Kirkuk soils which are similar in other respects. In the Bakhtiari foothills the predominant soil is gravel, while heavy marls are often found in the valleys of Kurdistan.

In the mountains of Kurdistan the soils are heavily calcareous, some of them being little more than impure disintegrated limestone. They vary in colour from cream through brown to red, are deficient in soluble salts, and contain varying amounts of organic debris.

The soils of the Syrian desert for the most part consist of the detritus resulting from the weathering, through countless ages, of the underlying rocks, which are mostly limestone. This process has resulted in the production of two main types of soil, though various intermediates and modifications exist: (*a*) greyish steppe soil, ashen grey in colour, with a high content of lime and almost entirely lacking in humus; it often possesses a high percentage of clay or fine sand

which renders it easily penetrable to water, and it is well aerated; (*b*) gravel lands, where, by a process of selective weathering, large areas become covered with black flint pebbles or gravels of various kinds; the soil is usually hard and compact. The vegetation of these stony areas is always extremely poor.

There are few extensive sandy tracts; true dunes are rarely seen. Sandy soils are not uncommon in dry wadis, while the plain which extends south of the Hammar lake along the line of the Basra–Ur railway consists of packed sand covered for the most part with a thin layer of fine or rough gravel.

Types of Vegetation

Excepting the hydrophytic (moisture-loving) vegetation of the perennial watercourses and of the marshlands associated with them, and excepting the alpine communities of the Kurdish hills, most plant life in Iraq has to contend, over long periods, with conditions of extreme drought. Available water is a limiting factor of major importance, though conditions are far from uniform throughout the seven degrees of latitude of the Mesopotamian plains. Generally speaking, annual precipitation increases from south to north and the desert communities of the Wadiyan and Hajara districts give way gradually to the richer though still discontinuous community of plants of the 'steppe'. Such steppe bears little resemblance to its Russian namesake but denotes an area in which the treeless vegetation is equally distributed over the ground and remains so throughout the dry summer months. It seldom assumes the appearance of a continuous sward, except perhaps in the rainy season. Desert communities, on the other hand, are distinguished by a plant cover which, though often richly developed in the spring, disappears entirely in the summer months, or else is represented by a few unevenly dispersed perennials.

The transition from desert to steppe is gradual, depending almost entirely upon climatic influences. There is no clear-cut line of demarcation, and between the two extremes there is a broad band of intermediate 'semi-desert' communities, the limits of which it is difficult to define exactly; estimates vary between the 32nd and 35th parallel of latitude, latest opinion preferring the more southerly limit.

The difference between steppe and desert in Iraq is not merely one of degree of ground-cover, nor yet of contrasting behaviour of individual species; it involves also the composition of the flora. Iraq, in fact, is regarded as the meeting-place of two distinct floral regions:

the Irano-Turanian region extending southwards, and the Saharo-Sindian region spreading northwards from the deserts of Arabia. Many plants are bi-regional, but a large proportion are mono-regional and can be regarded as indicator species. The date-palm, for example, although a cultivated plant of oases, is restricted to Saharo-Sindian territory, and in Iraq ceases to be an economic factor north of the 35th parallel. Similarly, the mugweed, *Artemisia Herba-alba*, is restricted to Irano-Turanian regions, and in Iraq is known only in the steppes. Recent work has shown that the fusion of these two floral regions takes place approximately along the strip of steppe-desert transition. There are, however, areas of desert country within the Irano-Turanian domain, and expanses of steppe in Saharo-Sindian territory.

Biological Types

Apart from the plants of irrigated soil, the vegetation of Iraq may be divided into two main categories: (*a*) a scattered perennial community of low-growing shrubby plants, which persist in a more or less active state throughout the dry season; and (*b*) a community of herbaceous or shrubby plants observable only in the spring or in the first few months of summer.

(*a*) An eight months' drought coupled with blistering heat demands a high degree of specialization in plants which survive above ground-level throughout the summer. Such drought-resisting species are known as *xerophytes*. By certain modifications of structure, effective control is exercised over water economy, so that a favourable balance is maintained between absorption and conduction on the one hand and loss by evaporation on the other. In Iraq these plants are mostly low shrubby or sub-shrubby perennials, grey and often seemingly lifeless at the height of the hot summer, but growing actively and flowering after the winter rains have moistened the dry dusty soil.

(*b*) In startling contrast to the dreary vegetation of summer is the bright herbage of the spring. At this season, when the parched soil has been moistened by winter rains, and the sun is not too hot, a varied and colourful society of annual and perennial plants appears.

Annuals may be separated into at least two types. First, there are the true *mesophytes*, incapable of resisting drought, which are green and lush. The short rainy season accelerates their life-cycle, so that only a few months or even weeks elapse between initial germination and the setting of seed. These short-lived annuals are known as

ephemerals. They suffer severely in seasons of exceptionally low rainfall, and may then never attain the fruiting condition.

The second type of annuals are those whose life-cycle is not completed during the rainy season but continues into the first few months of summer. Growth is most rapid during the rains, while flowering and fruiting takes place usually a month or more later. These annuals always exhibit some degree of xerophytism, although the full development of this characteristic is not usually displayed until the approach of dry conditions.

Perennials, which normally persist from year to year, may also be divided into two groups. The first group is biologically analogous to the ephemerals since they come above ground only in the rainy season. They remain underground in the summer in the form of bulbs, corms, rhizomes, &c.—structures which store food reserves and at the same time develop regeneration buds for the next season's growth. Thus they shun the drought and, like the ephemerals, are mostly mesophytic. The second group includes various perennial herbs and dwarf shrubs which pass an active existence during the first part of the dry season, but whose aerial parts eventually succumb to the fierce heat of summer. These all show distinct xerophytic adaptations to dry conditions and regenerate each season from buds produced above ground on the remains of old branches.

Botanical Divisions

Iraq may conveniently be divided into the following botanical areas:

1. Syrian desert.
2. River banks, marshes, and canals.
3. Mesopotamian plains.
4. Assyrian plains and Kurdish foothills.
5. Kurdish mountains.

They are best described in this order, which illustrates the change from desert to mountain vegetation.

1. *Syrian Desert*

West and south of the Euphrates is part of the Syrian desert, which extends over the adjacent territories of Syria, Transjordan, and Saudi Arabia, bordering the 'fertile crescent'. Much of it is barren and forbidding for the greater part of the year. Summer temperatures are high and water is very limited. The desert south of Basra, though near the head of the Persian Gulf, receives only 5·5 inches of

rain in the year, while at Samawa near the rice-growing area of the Euphrates, rainfall drops to 3 inches or less. In the Wadiyan district conditions are even more severe, and the occasional local rain may leave some areas untouched for years. Dews, however, are sometimes very heavy and supplement, to some extent, the exiguous rainfall.

The monotonous undulating plains of the Wadiyan are broken up by a complicated system of wadis which run in the general direction of the Euphrates, though few reach it (fig. 30). Since there is no perennial stream in the area, no hydrophytic vegetation is found west of the Euphrates; but, in addition to the wadis, the banks of which are sometimes quite deep, numerous other shallow depressions and gullies collect the limited rainfall. It is in these depressions, where drainage is poor, that salt-marshes (*sabkhas*) develop under the intense heat of the sun. Such spots are frequently the centres of halophytic communities of plants, the components of which are able to withstand extreme saline conditions.

As in most arid or semi-arid countries, the humus content of the soil is low or non-existent. This is caused both by the paucity of the plant cover and by the high soil temperatures. The result is that the power of retaining water, which humus confers on a soil, is lacking, except where clay is present. On the rare occasions when rain falls, the water sinks through the soil or drains off rapidly to lower levels, and consequently the richest plant communities are found in hollows and depressions where the subsoil water is again near the surface of the ground so that the soil remains moist for longer periods. These wadis and depressions are frequently the only areas of plant life in immense barren stretches, and their location is the basis of beduin existence in the desert.

Vegetation. Our knowledge of the vegetation of the Syrian desert is scanty and is limited mainly to such areas as are easy of access or to the observations of travellers and explorers, such as Alois Musil. Much of the extensive Hajara and Dibdibba districts in the south is still largely a *terra incognita* to botanists.

In the driest parts of the desert there are extensive rocky and gravelly plains of almost complete sterility. In the Wadiyan district, for example, at the end of March, Musil speaks of 'long wide plains where there was not a plant', and writes, 'everything around us was ashen-grey; the upland was absolutely desolate, dead, while in the lower places appeared only the dry lifeless bushes of *Salsola lancifolia*, wormwood, or *Astragalus spinosus*'. In stony gullies he noted

bushes of *Zilla spinosa*, a thorny almost leafless much-branched shrub belonging to the cabbage family, while one of the almonds, *Amygdalus arabicus*, was seen in the deeper ravines as 'bright green bushes'. One of the daisy family, the yellow-flowered *Asteriscus graveolens*, a low shrub with hard grey-velvety branches, was also noted in ravines.

Most of the persistent perennials in the desert are low bushy shrubs or sub-shrubs, much-branched and compact, and rarely exceeding 2 feet high. They are widely dispersed, taking advantage always of the slightest depression. The summer aspect of this vegetation is monotonous and drab, the result of arid conditions. Xerophytism is strongly marked, the prevailing grey colour of the plants being due to a protective investiture of dense hairs which covers the entire stem and leaf surfaces of most of the species. A few, such as the joint-pine (*Ephedra alata*), lose their leaves very early or reduce them much in size. Others are rough and prickly, with an impermeable surface of tough cuticle, coupled often with a hairy covering as well.

Arid soils are usually peculiar for their high content of mineral salts. This fact accounts for the presence in the desert of a number of maritime species belonging mostly to the goosefoot family (Chenopodiaceae). Many plant communities covering large areas are dominated by species belonging to this group. Characteristic of the stony lands of the Hamad, for example, is *Haloxylon articulatum*, a low shrubby plant with jointed stems and scale-like leaves. Another species, *H. salicornicum*, a low herbaceous fleshy plant, prefers sandy soils and occupies large tracts from Basra to Ur. A third species, also restricted to sandy soils, is *H. persicum*, a tree-like shrub up to 20 feet in height, with white bark and brittle branches. It somewhat resembles tamarisk and is a most useful desert plant, supplying the beduin with camel-fodder, timber, and fuel. The sandy or sand-gravel soils of the Zubair desert south of Basra are dominated by *Rhanterium epapposum*, a low branching shrub belonging to the daisy family. Known to the beduin as *arfaj*, it also is useful both as fuel and fodder. Other representative perennials in this area are the spiny milk-vetch (*Astragalus spinosus*), a low hairy spinous shrub; a sun rose (*Helianthemum sessiliflorum*) with yellow flowers and whitish branches; two relatives of mignonette, *Reseda decursiva* and *R. arabica*; and a stork's bill (*Erodium glaucophyllum*) with prostrate stems, grey hairy foliage, purple flowers, and fruits with beaks up to 3 inches long. The summer aspect of this desert, however, is poor, since two-thirds of the total flora consist of annuals which disappear in the dry season.

The steppe communities in the north are largely dominated by one of the mugweeds, *Artemisia Herba-alba*, a shrubby woolly member of the daisy family, which prefers the deep grey steppe soil and completely avoids saline or rocky soils. *Haloxylon articulatum* is often one of its associates, and other perennial members of the goosefoot family may also be present. A perennial constituent of this community, prominent in spring, is a grass, *Poa sinaica*, whose aerial parts shrivel and disappear in the summer, the plant propagating itself by small bulb-like structures arising from the thickened bases of the lowermost leaves. This community has been seen beside the Ramadi–Rutba road where the vegetation may cover up to a quarter of the surface of the ground.

Salt-marsh Vegetation. In depressions and valleys where drainage is poor, the surface remains damp for long periods, so that the degree of salinity is intensified and salt-marshes or *sabkhas* are formed. Under extreme conditions a glistening salty crust, resembling hoar-frost, is produced, which is completely toxic to plant life. But generally the vegetation of a salt-marsh is fairly rich. Conditions are favourable for maritime species, members of the goosefoot family being very common. The following members of the family have been recorded from sabkhas in the Syrian desert: *Arthrocnemum glaucum*, a small bushy perennial shrub with curious jointed succulent stems, rudimentary leaves, and dense greenish flower spikes; *Salsola tetrandra*, another perennial shrub, whitish and hairy with tortuous branches and minute leaves; *Atriplex halimus*, a silvery white bush up to 3 feet high with woody spreading branches; and *Suaeda monoica*, a showy shrub up to 16 feet high, with yellowish branches, fleshy leaves, and with small crimson berry-like fruits. Other constituents of salt-marshes include the sea rush, *Juncus maritimus*; a grass, *Aeluropus repens*; and *Nitraria retusa*, a tall shrub with fleshy leaves belonging to the Zygophyllaceae. These plants, because of their succulence, are much prized as fodder by the nomads, by whom they are known as *hamdh*. In addition, several species of tamarisk (*Tamarix*) are frequently found in salty areas. These are graceful evergreen trees or shrubs with slender erect branches, small green scale-like leaves, and long spikes of whitish or pinkish flowers.

Spring Vegetation. The advent of rain brings forth its spate of fleeting annuals and bulbous perennials. Green shoots appear between the grey xerophytic bushes and in a few weeks bright blooms enliven the scene. Rainfall, however, in some desert localities is so uncertain that, although initial germination may start, the seedlings



75. *Delta plains. Salty land outside Amara. Bushes of Schanginia baccata, January 1929*



76. *Plain near Tursaq at foot of the Pusht-i-Kuh on the border of Persia about 50 miles east of Baquba. Plant association of Tamarix sp.*



77. *Plains west of Mosul, between Khaniq and Jabal Ain Zaalan. Dense association of Centaurea Behen. Alt. 1,200 feet, April 1933*



78. *Assyrian plains. Lower reach of the Great Zab, near junction with the Tigris. Poa bulbosa steppe, April 1933*

may shrivel and die of thirst at an early stage. This mesophytic spring vegetation is green and colourful. Annuals such as the scarlet poppy (*Papaver Rhoeas*) and the purple stork's bill (*Erodium cicutarium*) are found also in Britain, while many are strikingly reminiscent of other familiar plants. There are purple scabious (*Scabiosa Olivieri*), yellow groundsel (*Senecio Desfontanei*), golden marigold (*Calendula aegyptiaca*), yellow bird's foot trefoil (*Lotus angustissimus*), white fumitory (*Fumaria parviflora*), yellow toadflax (*Linaria ascallonica*), and bright blue pimpernel (*Anagallis caerulea*). Winter-flowering perennials, such as asphodel, garlic, and iris, together with a number of grasses, add to the colour of the landscape.

2. *River Banks, Marshes, and Canals*

In striking contrast to conditions in the Syrian desert, the alluvial lands of southern Mesopotamia suffer from a surfeit of water.

From Fao on the Persian Gulf as far as Basra and beyond, the landscape is dominated by immense groves of date-palms. This tree, though a native of Iraq, is now a cultivated plant and the groves are therefore described under agriculture (p. 457). The further north the trees grow, the more spindly and weak they become and beyond the 35th parallel their yield is scarcely economic. Where cultivation is intensive along the river banks and the marshy islands, the natural vegetation has long since made way for secondary communities. Even where the soil is too wet for date cultivation, the growing of rice has had a similar effect.

Plants of the Shatt al Arab and its Branches

The surface of the water itself is often covered by floating colonies of a small water-fern, *Salvinia natans*, like duckweed, in conjunction sometimes with *Limnanthemum indicum*, an aquatic herb with rounded floating leaves. On the surfaces of ponds or small creeks which have been dammed off from the stream, white-flowered water-buttercups (*Ranunculus* spp.) may often be seen. In the late autumn the shallows above the mud-flats are pink with the flowers of one of the knotgrasses, *Polygonum scabrum*, while on the flats and river banks themselves in late summer and autumn a prostrate woolly herb with white flowers, *Glinus lotoides*, is a common sight.

Various sedges, such as *Cyperus corymbosus*, form dense communities on mud banks, and a tall reed-like grass, *Erianthus Ravennae*, may be seen flaunting its silvery plume-like inflorescences among summer crops on wet ground. In the spring, along the edges of

creeks, a rich community of familiar annuals may be seen, including geraniums, vetches, spurges, pimpernels, and speedwells. In the water of these creeks the flowers of mare's tail and frog-bit rise in April. In the palm-groves themselves there is often a thick undergrowth of the sticky-leaved liquorice (*Glycyrrhiza glabra*), a tall perennial herb with bluish-violet flowers and short flat pods. The camel thorn (*Alhagi maurorum*) also sometimes intrudes into the groves, although, generally speaking, it is a plant of poorer soils.

The Marshlands and River Banks (photos. 5, 6, 17)

Between Basra and Baghdad many square miles of marshland are occupied by dense communities of a perennial grass, *Phragmitis communis* and a bulrush, *Typha angustata*. Both grow up to 10 feet in height and form dense thickets. When young they constitute useful fodder, and the marsh Arabs are accustomed to burn down large areas every season in order to encourage the growth of young shoots.

At certain places along the rivers, occurring in small belts, are found the Euphrates poplar (*Populus euphratica*) and a willow (*Salix acmophylla*). Another willow, *S. alba*, is less common. They are seen generally on islands and at curves and bends of the river, more frequently on the Euphrates than on the Tigris. The willow is less common than the poplar, but is found farther south. The poplar grows at a great pace and assumes a curious twisted, crooked habit after the fourth year of growth. The thick grey-green leaves are frequently of two kinds—narrow willow-shaped leaves on young shoots near the base, and broad leaves of the usual poplar type on the higher branches. The tree is often infested with a parasitic dodder (*Cuscuta monogyna*), a flowering plant whose pale fleshy stems form tangled skeins among the branches. The wood of the poplar, when mature, can be used for planking and boat building; that of the willow is soft and of little value. Neither provides very good fuel. Both trees coppice vigorously when cut, and although they are both capable of growing to a great size, they rarely do so, owing to the Arab's habit of continually hacking at them.

As an undergrowth in these riverain thickets, in addition to numerous annuals, grasses, and sedges, there often occur species of tamarisk (*Tamarix pentandra* and *T. Meyeri*) and the shrubby *Prosopis Stephaniana*. The latter plant, a member of the pea family, is a loose straggling thorny shrub with little spikes of cream-coloured flowers, reddish-brown swollen pods, and small leaflets. It is extremely common everywhere in the cultivated riverain areas of lower Iraq, as

well as in fields and pastures on the upper plains and in mountain valleys of Kurdistan up to about 3,000 feet. Along the Tigris in places it forms dense impenetrable thickets over 7 feet high, but usually it does not attain more than 3 feet, being continually cut by the Arabs for fuel. It is extremely deep-rooted and is usually an indicator of good land. The plant is of great importance to the shepherd since it covers immense stretches of otherwise barren country, and provides grazing throughout the summer when the annual herbs have died down.

The willow and poplar communities are strictly riverain and never stray far from the margins of streams. The tamarisk, however, is not so fastidious and may extend a long distance inland. Around Baghdad and Mosul, for example, occur communities of tamarisk and boxthorn (*Lycium barbarum*) which, although readily colonizing river banks, are capable also of spreading landwards on to drier and often strongly saline soils. The boxthorn, or tea-plant, as it is sometimes called, a low thorny shrub, frequently has its stems covered in a yellow lichen (*Xanthoria* sp.). The spring undergrowth of this community is extremely rich and of a bright green.

On the Tigris, between Kut and Ctesiphon, there are almost continuous areas of brushwood communities on both sides of the river. These consist usually of a dense belt of tamarisk and *Prosopis* on the river-side, up to 9 feet in height, with thinner and shorter thickets behind of tamarisk, *Prosopis*, liquorice, and various thorny bushes. These areas provide a valuable source of fuel for the inhabitants of Baghdad as well as revetting material for the numerous bunds in the neighbourhood. North of Samarra there is practically no growth at all on the river until Mosul is reached, where there is a large forest of tamarisk scrub.

The liquorice plant, which grows up to 6 feet high, is common in the riverain areas but is noticeably absent on the Euphrates above Falluja, although it extends northwards into the valleys and water-courses of Kurdistan. The underground stems (rhizomes) are the source of Spanish liquorice and a considerable trade in it is carried on. The plant also provides excellent fuel.

3. *Mesopotamian Plains*

From approximately the 34th parallel southwards to Basra, large tracts of the plain, excluding the marshlands already described, are under cultivation, especially the greater part bordering the rivers or

traversed by modern canals. Many areas, however, once cultivated in the past, are now neglected and desolate and bear plant communities of a purely secondary nature. Even in long abandoned areas, the vegetation can be regarded as only semi-natural. Such waste places along the rivers become covered in fairly dense communities of *Prosopis* and the gorse-like camel thorn (*Alhagi maurorum*), a small much-branched prickly shrub with reddish pea-shaped flowers and little twisted brown pods, which is better developed on more saline soils. Liquorice may also be present where water is close at hand, while, in the spring, grasses and other low annuals sprinkle the ground.

Between the rivers south of Baghdad there are certain regions untouched by periodic inundations about which little is known botanically. In all probability the vegetation resembles that of the Syrian desert.

Saline areas are common on the lands that fringe the rivers, particularly in the tidal region, and where the salt content is not too high the following halophytes may occur: *Arthrocnemum glaucum*, *Suaeda vermiculata*, and *Atriplex tataricum*. All are valuable grazing plants for camels and sheep. Much of the grey-white silt desert that extends from Basra to the sea glistens with salt and supports little but a few scattered plants of camel thorn and here and there, perhaps, a solitary halophytic shrub (photos. 75, 76, 179). Large tracts are quite devoid of plant life. The spring aspect is equally depressing since the mesophytic annuals cannot tolerate saline conditions. In the wet season, in fact, the area is a sea of slate-grey mud.

Farther north, the soil becomes less saline, and in the Babylonian plain lying between Babylon and Samarra, including the area around Baghdad, and the Diyala river, the plain, although treeless and muddy, develops a spring vegetation bright with flowers and green grass. Wide stretches are sometimes covered with the red flowers of two low annuals, *Polygonum corrigioloides* and *Robbairea prostrata*.

A good example of a secondary community following the abandonment of a cultivated area is seen covering large tracts of plain between Baghdad and Falluja. The spring cover is rich and includes the following annuals: stork's-bill (*Erodium cicutarium*), a small prostrate herb with dissected leaves and pinkish flowers; this is widely distributed and is a most valuable spring grazing plant. Feverfew (*Matricaria aurea*), a small fragrant branched herb with finely cut leaves and little conical heads of golden-yellow flowers; this also is common and is a useful fodder plant. A dandelion-like plant, *Leontodon*

hispidulus; bucks-horn plantain (*Plantago coronopus*); milkweed, *Astragalus tribuloides*, a small prostrate herb with purplish flowers, and *Koeleria phleoides*, a small tufted grass. Large flocks of sheep are grazed over these areas in spring.

Away from the immediate vicinity of permanent watercourses, the desert lands of the Iraq plain vary somewhat in their flora. Deserts which have arisen on the dried-up, often saline mud of old river-valleys support a vegetation somewhat poor in species and individuals. On deserts with a substratum of calcareous soil the plant cover tends to be richer and of a different constitution. Still another type of flora arises in districts where sand predominates.

Generally speaking, climatic conditions become more favourable towards the northern parts of the plain and the spring vegetation is noticeably richer and persists for a longer period. Steppe conditions or, at any rate, steppe communities commence to appear. Mugweed (*Artemisia Herba-alba*), *Haloxylon articulatum*, and *Anabasis articulata*, another member of the goosefoot family, are all common constituents which are missing in the deserts to the south. These perennial plants do not attain their full development till the summer and autumn when the annual plants have dried up. In the spring, provided the winter rains are adequate, a herbage several inches high may spring up between the perennial bushes, composed often of the grass *Poa sinaica* and a dwarf sedge, *Carex stenophylla*. *Poa sinaica* is by far the commonest plant in these communities and may occupy up to three-quarters of the ground surface, or even more. Associated with the foregoing occur *Astragalus tribuloides*, feverfew, *Leontodon hispidulus*, groundsel (*Senecio coronopifolius*), and others.

The vegetation cover of large areas, e.g. in the Ghurfa plain north of Diltawa or in the plain of Khanaqin where thousands of sheep are pastured by the beduin in the spring, consists largely of *Poa sinaica* and another grass, *Stipa tortilis*. The latter is a small wiry annual which, although not particularly nutritious as fodder, is nevertheless of great value to the flocks in Iraq, since it grows over wide areas which are too arid to support more succulent vegetation. The spear-like 'seeds' are armed with a sharp point and a long slender awn; the latter is hygroscopic and assists by twisting in driving the seed down into the soil. Other plants found in these areas include *Leontodon hispidulus*, stork's-bill, feverfew, *Astragalus tribuloides*, &c. (photo. 180).

An exceedingly common plant found chiefly on waste land, by desert camping-grounds, and human habitations in general is *Peganum harmala*. It is an erect bushy herb with a strong smell, dissected

leaves, white flowers, and small round fruits. The seeds and stem yield a reddish-violet dye. Two common shrubs in the northern parts of the alluvial plain are the boxthorn (*Lycium barbarum*) and the caper (*Capparis spinosa*), which is a trailing brambly shrub with large white flowers and fig-shaped fruits. The fruit, which often bursts, exposing a reddish interior, is edible; the flower buds are pickled and used as a condiment. Both these bushes are grazed by camels and sheep.

4. *Assyrian Plains and Kurdish Foothills*

Northwards, the winter season becomes longer and colder, and the rainfall increases considerably. The summers, though shorter, are much the same as in lower Iraq. Here the spring vegetation is richer and less monotonous than in the south and the summer perennials are more numerous. Conditions, in fact, are more steppe-like than in the lower plains.

A much larger proportion of the land is cultivated in this area, almost the whole of the plain of Erbil being divided into cultivated fields, as well as a large part of the plains of Mosul and Kirkuk. But there are still areas of natural vegetation and quite large expanses are uncultivated in the Jazira north-west of Mosul (photo. 24).

One of the commonest communities found in these northern plains consists chiefly of *Phlomis Bruguierii* and *P. orientalis*, two tufted perennial herbs, with purplish and yellow flowers respectively, belonging to the sage family. They generally grow in small clumps and possess grey felty undivided leaves. With them is also associated *Cousinia stenocephala*, a spiny perennial member of the daisy family with purplish flowers. These constitute the summer vegetation. In the spring a close green herbage arises, composed of *Poa sinaica*, *Carex stenophylla*, and *Ranunculus asiaticus*, together with many other small annuals and perennials. *Ranunculus asiaticus* is a buttercup with large brilliant scarlet flowers, which are often mistaken for poppies, and which in masses give the landscape a reddish glow. After the spring flowers have withered away and begun to expose bare earth, the clumps of *Phlomis* and *Cousinia* begin to blossom. Many other plants are associated locally with the foregoing, including *Prosopis*, mugweed, plantains, St. John's wort, rock roses, and stork's-bill, &c. A community which seems to be common west and north-west of Mosul consists principally of *Centaurea Behen* var., a broad-leaved herb several feet high belonging to the daisy family. The woody rootstock is much used for fuel, and the plants sometimes grow so



79. *Assyrian hills. Mountain path leading to Shaikh Adi, north of Mosul. Valley on left contains trees of Platanus orientalis with Salix sp. Shrubs of Nerium Oleander on hill-side above path. Oaks on hill to left*



80. *Assyrian hills. Dry wadi at junction of Kurdish foothills and plain near Bingeli village, between Ain Sifni and Shaikh Adi. Ash-trees (Fraxinus rotundifolia). Alt. 1,500 feet, July 1933*



81. *Outer Kurdish mountains from hilltop east of Zawita village. Hills wooded with oaks (Q. persica, Q. infectoria). Aleppo pine (P. Halepensis) on lower slopes. Alt. 2,500–4,000 feet, July 1933*



82. *Outer Kurdish mountains. Stream in valley below Atrush. Shrubs of Vitex Agnus-castus and Platanus orientalis grow by water's edge, with Phragmites communis and Populus euphratica on bank to left. Alt. c. 2,500 feet, July 1933*

densely as to give the land occupied by it the appearance of an immense cabbage patch. The species is often associated with *Phlomis Bruguierii*, *Prosopis*, and *Cousinia* (photo. 77).

In small valleys and open depressions in the neighbourhood of the foothills a community dominated by asphodel (*Asphodelus microcarpus*) is frequently found. It is a tall perennial herb several feet high with beautiful pinkish flowers, and grows in dense clumps which may cover three-quarters of the ground surface of the locality. The spaces between the clumps are occupied by a sward of *Poa sinaica*, *Carex stenophylla*, *Ranunculus asiaticus*, and other plants (photos. 34, 78).

The gravel hills of the Bakhtiari formation support a vegetation of which the dominant plants are two dwarf shrubby milkweeds, *Astragalus spinosus* and *A. gossypinus*. These two species may cover a quarter to a half of the ground surface. Other plants associated with them include a sage (*Salvia palaestina*) with pale mauve flowers; alkanet (*Anchusa strigosa*), a bristly herb with bright blue flowers, and species of flax, thyme, and gypsophila with *Phlomis*, *Cousinia*, and many other species already mentioned. Other localities where this type of vegetation may be seen include the Kani Domlan hills between Kirkuk and Altun Kopru and along the Ruwandiz road at Khanzad pass near Erbil. The bean trefoil (*Anagyris foetida*), a leguminous shrub, up to 6 feet high, with yellowish-green flowers and long brownish pods, is dominant in one or two localities in the area between Dohole and Zakho.

5. *Kurdish Mountains*

Climatic conditions continue to become more favourable for plant growth as one approaches the Kurdish mountains. The available water-supply is adequate, while summer temperatures do not soar quite so high as in the plains. Conditions are almost Mediterranean in character, and the vegetation becomes modified accordingly. As in most mountainous areas the vegetation varies with altitude and may conveniently be classified as follows:

(*a*) Mountain streams and marshy places (photos. 79–82).
(*b*) Forest zone (photos. 49, 50, 83).
(*c*) High mountain zone (photos. 84, 181).

(*a*) *Mountain Streams and Marshy Places*. In the lower mountain valleys, ditches and streams are often completely filled with communities of damp-loving plants. Many of these are common species of the Mediterranean region and are often familiar constituents of our own British flora. A common community is an association of a

low perennial grass, *Poa persica*, with the brooklime (*Veronica beccabunga*). With these often occur watercress (*Nasturtium officinale*), bulrush (*Typha angustifolia*), purple loosestrife (*Lythrum salicaria*), buttercup (*Ranunculus cassius*), mint (*Mentha royleana*), and a shrubby bramble with edible fruits (*Rubus sanctus*). The larger streams may be fringed by a narrow strip of the giant reed-grass, *Phragmitis communis*. On the banks are commonly found willows (*Salix purpurea* and *S. Medenii*), plane (*Platanus orientalis*), ash (*Fraxinus oxyphylla*), brambles, hemp agrimony (*Eupatorium cannabinum*), fleabane (*Pulicaria dysenterica*), and an ornamental giant silver-plumed grass (*Erianthus Ravennae*). The grape vine (*Vitis vinifera*) frequently scrambles over the trees and shrubs. Farther from the water's edge is found the oleander (*Nerium Oleander*), an extremely poisonous evergreen shrub with handsome pink, white, or red flowers. Still farther from the water is found the chaste tree (*Vitex Agnus-castus*), an erect aromatic shrub with grey foliage and small lilac flowers, which extends also along the banks and hummocks of the stony torrent beds of the sub-montane plains. Associated with it is the Christ's thorn (*Paliurus Spina-Christi*), a somewhat straggly thorny shrub with inconspicuous yellow flowers. The maidenhair fern (*Adiantum Capillus-Veneris*) is common below dripping rocks and cliffs by streams. In lower Iraq it is found also in wells.

(*b*) *Forest Zone*. The Kurdish mountains between about 2,000 and 6,000 feet are covered for the most part by an open oak forest. Denudation of these forests, however, has been progressing for many years and in many places only a low scrub remains. In the neighbourhood of villages the trees are much lopped and maimed and the ubiquitous goat effectively retards regeneration. The cutting of trees for timber and fuel is entirely haphazard, and the practice of charcoal-burning in many localities also intensifies the destruction of the natural forests. Far away from human habitations, where the soil is not too poor or rocky, the trees are often well grown, attaining 50 feet in height and with large spreading crowns and thick twisted gnarled boles. There is little accurate information as to the identity of the oaks of Kurdistan, but on the Iraqi side of the mountains *Quercus persica* and *Q. infectoria* are said to be common. The galls of the latter are collected and sold for tanning and dyeing. In places *Quercus sessiliflora* is said also to occur. Associated trees and shrubs include maples (*Acer cinerascens* and *A. monspessulanum*), terebinth (*Pistacia mutica*), hawthorn (*Crataegus monogyna, C. heterophylla, C. Azarolus*), juniper (*Juniperus oxycedrus*), wild pear (*Pyrus syriaca*),

and the bean trefoil (*Anagyris foetida*). A variety of the Aleppo pine (*Pinus halepensis*) occurs occasionally in the mountains north of Mosul. It is extremely local in its distribution and is restricted to altitudes of between 2,500 and 4,000 feet. The ground vegetation is very varied and rich, especially in areas now occupied by scrub. Many gaily-coloured annual and perennial herbs cover the ground, including several members of the daisy family, such as the ornamental globe thistle (*Echinops viscosus*), and thistly *Gundelia Tournefortii* with bright orange or reddish-yellow spiny heads, and star thistles (*Centaurea* spp.). With these also grow gaily-coloured anemones (*Anemone coronaria*), buttercups (*Ranunculus myriophyllus*), a purplish-flowered stork's-bill (*Geranium tuberosum*), and hosts of others.

Small, almost pure pine-forests have been recorded at Zawita, and Atrush, in the mountains north of Mosul and east of Dohuk. Associated with the pine are sometimes found constituents of the oak forests, such as oaks, juniper, and terebinth, and a number of herbaceous plants.

(*c*) *High Mountain Zone*. The upper limit of the forest zone is in the neighbourhood of 6,000 feet. Above the tree limit there is sometimes a narrow shrubby zone of *Daphne acuminata*, a plant bearing cream-coloured flowers and bright red fruits. With it occurs the globe thistle, spurge (*Euphorbia tinctoria*), and other species. The most striking community, however, between 6,000 and 7,000 feet is the 'thorn-cushion zone'. The dominant plants of this formation are low herbs and shrubs which grow in the form of close compact cushions, sometimes several feet in diameter. They are usually very spiny, the leaf surface is much reduced, and the whole aspect is very xerophytic. They are scattered loosely over the somewhat rocky soil with occasional herbaceous plants in the intervening spaces. Most of the cushion-plants are either species of milk vetch (*Astragalus*) or of *Acantholimon*, a genus belonging to the thrift family (Plumbaginaceae).

On the higher rocky mountain slopes herbs, often highly aromatic, predominate. Among the many species recorded above 8,000 feet are several 'everlasting' helichrysums, with persistent papery yellow blooms which often smell strongly of curry. *Anchonium Tournefortii* is a stock-like plant with yellow sweet-smelling flowers, and *Physotychis gnaphalodes* is a tufted herb with brilliant aromatic flowers of the same colour and with curious green bladder-like fruits. Thyme is represented by *Thymus Kotschyanus*, a dwarf matted shrub with pinkish flowers giving out a fragrant perfume. A vetch with white to

blue flowers (*Vicia gregaria*) is found commonly in dense communities in the damper parts of the mountain sides, especially in shallow gullies. *Myosotis alpestris*, a forget-me-not with intense sky-blue flowers, is found in dense clumps on the narrow ledges just below the summit of the Algurd Dagh at an altitude of 11,000–12,000 feet. The small lakes on this mountain at 10,000 feet are bordered by damp turf covered with a buttercup, *Ranunculus brachylobus*. In such places also grows the attractive *Primula auriculata* with pink primrose-like flowers.

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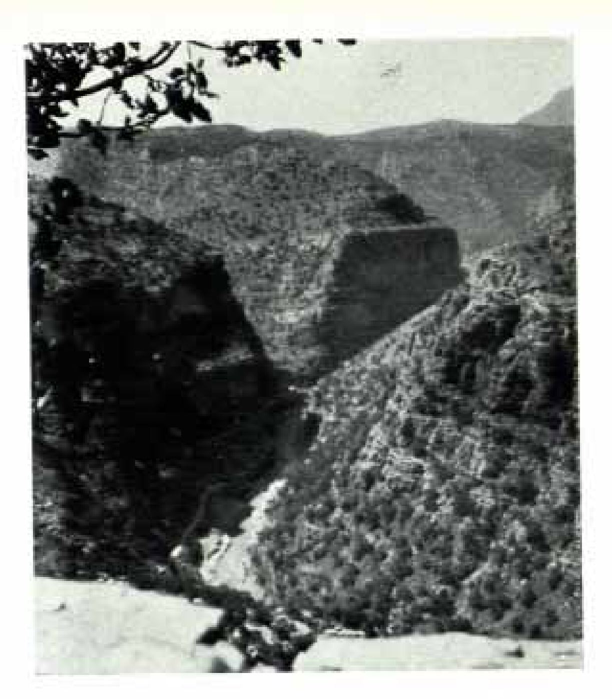
In former times the lion was not uncommon in Iraq and ranged from Palestine to India. One writer tells of a tame animal which frequented the market at Baghdad and helped itself to fish as it pleased. With the advent of the breech-loading rifle the lion was doomed. About 1908 a live lion was sent to Berlin from Iraq and, according to Sir Percy Sykes, they still existed in 1910 in the lower Karun region of Persia. None, however, were seen during the War of 1914–1918.

The oryx, wild ass, and ostrich were common in the past and widely distributed in the deserts of Arabia, Iraq, and Syria, and their decrease has been due to the same cause as that of the lion. A few oryx still linger in the more remote parts of its range, and may still occur on the borders of Syria and Iraq. Here, too, will be found such ostriches as may still exist. This bird frequently figures in Babylonian carvings and was represented as little taller than a man. At one time it was thought that these figures were young birds or that their size was a matter of 'artists' licence'. It is now known that the Arabian ostrich is not large and much smaller than African birds.

Of the wild ass little can be said, since its previous distribution is not clear and it is more than doubtful if there are any now, though specimens were formerly obtained in Mesopotamia. The wooded hills between Iraq and Persia were at one time the haunts of a fallow-deer which, in prehistoric times, was also found in Palestine. Now, since the cutting down of trees and the introduction of rifles, this interesting deer is no more.

Mammals

About eight kinds of bats are recorded from Iraq, and one of the most abundant is the white-bordered pipistrel. In size and colour it is very similar to our common pipistrel, and can be often seen catching

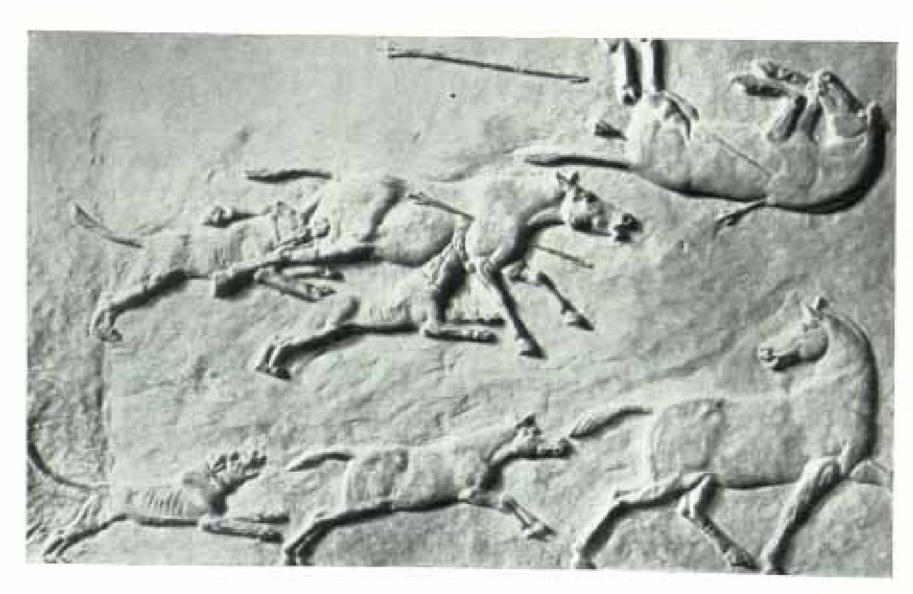


83. *Oaks on the mountains of the Ruwandiz gorge*

84. *Thorn-cushion community of the high mountain zone*



85. *King Ashur-Banipal of Assyria hunting lions*



86. *Hunting wild asses*

insects round lights. In some places the horseshoe-bat is not uncommon, and a larger species, the Babylon sheath-tailed bat, is plentiful. The latter roosts by day in roofs, where it makes its presence known by constant quarrelling. A small shrew barely 2 inches long is widely distributed, and about Basra there is a large grey kind similar to the musk-rat of India. Both in the cultivated area and on the edge of the desert the long-eared hedgehog may be met with, though it is rather local.

A form of the Indian jungle-cat, a powerful animal the size of a jackal and of uniform grey or tawny, occurs wherever there is thick scrub. Less common is the Eastern wild cat, a smaller beast with spots on its flanks and a longer tail. The jackal is similar to that of India and does much damage to garden crops such as melons. Hyenas occur in certain parts and attack sheep and sick animals. The small Persian mongoose is widely spread in the southern areas, and the young are often tamed by Arab children. About the rivers and marshes the common otter is not rare; the Arabs hunt it by moonlight with a double-pronged spear.

At least six different species of gerbils, or desert rats, have been noted as occurring in Iraq. They vary in size, are of a sandy colour above, white below, and have very large eyes. One kind, Loftus's gerbil, has the hind legs much developed and can jump and dodge like a kangaroo. All live in deep burrows to escape from the heat; some feed by day, others are purely nocturnal. Similar in size to the common water-vole, but of a paler colour, is Buxton's mole-rat, so called because it blocks the entrance to its burrow with a mound of earth like a mole-hill. The brown and the Eastern black rats are common in Basra, but only the latter extends up country. In towns and villages the Eastern house mouse, of a browner hue than the familiar animal, is only too common.

The Iraqi hare, a pale-coloured animal, is widely distributed. About the fringes of the marshes there are wild pigs. In the deserts and drier parts Marica's gazelle, rather larger than the Arabian gazelle, may occasionally be seen.

Birds

In spring and autumn large numbers of birds pass through Iraq either on the way to their breeding haunts farther north or to their winter quarters in Africa. These include many familiar European species such as the spotted fly-catcher, willow warbler, common wheatear, swallow, cuckoo, and different wading-birds. Others come

to Iraq for the winter: rooks, song-thrushes, chaffinches, various birds of prey, and a large number of waders. A few choose Iraq as their breeding-ground, such as the Persian bee-eater and the grey-backed warbler. Finally there are the resident birds, but their total is smaller than the visitors; they include babblers, bulbuls, scrub-warblers, and sandgrouse.

Two forms of hooded crow are found in Iraq: one, Sharpe's crow, which has a dark grey mantle, is a winter visitor from the Persian plateau; the other, the Iraqi crow, in which the back is almost white, is a resident; both are familiar near Basra. Flocks of rooks accompanied by a few jackdaws are not uncommon in winter and, at the same season, vast flocks of starlings may be seen in the evenings near Basra making for their roosting quarters. Linnets, goldfinches, and chaffinches are winter visitors as far south as Amara, and everywhere the house-sparrow inhabits the towns and villages, while the brighter coloured and more heavily marked Spanish sparrow only comes for the winter. Much less common—but a characteristic bird—is the little scrub sparrow, a miniature house-sparrow with a yellow patch on the sides of the neck. It breeds in tamarisk trees and makes a nest like a magpie's with an entrance at the top.

Among the buntings, the ortolan is a passage migrant, the common a local resident, and a number of others are winter visitors in small numbers. About mid-October hordes of short-toed larks arrive to winter on the open plains and, at the same time, eastern skylarks take up their quarters in the more cultivated areas. The crested lark, similar to the French bird, is a common resident, and in the desert west of the Euphrates the bifasciated or hoopoe lark occurs at all seasons. Water-pipits frequent flooded areas in winter, and tawny pipits the drier parts. Large numbers of wagtails, both black-headed and blue-headed, pass through on migration, but only the white wagtail stays the winter. Great grey and isabelline shrikes are met with in the cold season, while the woodchat and masked and red-backed shrikes are passage migrants. One of the most interesting birds is the grey hypocolius which nests near Baghdad and elsewhere when the dates are ripening; it is about the size of a bulbul with a longer tail and is greyish-brown in colour. Its relationship is obscure and it is a great wanderer, having occurred in Sind and near Bombay.

The white-eared bulbul is common at Basra and extends up the river to Baghdad. During the spring and autumn migrating spotted flycatchers, willow warblers, chiffchaffs, reed warblers, garden and many other European warblers may be met with. The olivaceous

warbler, Ménétries's warbler—a handsome black-headed bird with grey upper parts, wine-coloured and black below—and the grey-backed warbler come to Iraq to breed. The last is a confiding bird with a pleasing song and has a delightful way of flirting its tail. Along the river banks, wherever there is cover, the wren-warbler, a small heavily marked species with a long tail, is found at all seasons.

In the palm-groves the Iraqi babbler is a familiar bird, but elsewhere it is local; it closely resembles the well-known 'seven sisters'. In the autumn, song-thrushes and blackbirds make their appearance, some spending the winter as far south as Basra. At this season many different chats are seen on the move, including the common wheatear, stone- and whin-chats. Bluethroats may occasionally be disturbed from thick cover while resting on migration, and Persian robins are not uncommon in Basra gardens in the cold weather. The common cuckoo and swifts are only seen on passage, and so too is the common nightjar, but the Egyptian species comes to nest.

Numbers of brilliant European bee-eaters are often seen on passage, and in the spring Persian bee-eaters, green with chestnut throats, make their appearance and remain to breed. Both the European and the Indian rollers nest in Iraq, though the latter is far from plentiful. The common, the pied, and the white-breasted kingfishers are not rare, and hoopoes pass through in spring and autumn. The only owls which are common are the Eastern, the little, and the short-eared, the latter only remaining throughout the winter.

There are many birds of prey, but the larger species are difficult to identify in the field; they include several eagles and two vultures. In early autumn black kites and ospreys return and, at the same season, peregrine and sacer falcons take up their quarters in the vicinity of the vast numbers of sandgrouse and duck on which they prey. Buzzards of two kinds are frequently seen on passage, and both the common and lesser kestrels are also in evidence, though some of the former are resident. Large numbers of marsh harriers haunt the reed-beds, some remaining to nest, and on the drier ground pallid harriers are numerous.

At times thousands of pelicans frequent the marshes and are reported to have bred. In the same marshes also are numerous pigmy cormorants, the common species preferring the open rivers, and about Azair (Ezra's Tomb) that curious cormorant-like bird, the darter or snake-bird, is not uncommon.

Geese, both white-fronted and grey-lag, winter in the marshes in large numbers, and a few of the latter even breed there. Vast flights

of ducks come to Iraq for the cold weather and include all the common European kinds as well as the red-crested pochard and marbled duck. Flamingoes are occasionally seen on inundations, and the marsh areas are the haunt of many herons, including the giant heron, a huge bird like a purple heron but much larger. Storks regularly pass through Iraq on their way south, some remain for the winter, while a few are resident or at least nest in Iraq. Spoonbills frequent the marshes throughout the year, and the white ibis is not uncommon in southern Iraq. The houbara is widely spread, but the great and little bustards are confined to northern districts. In suitable country both the stone curlew and the common pratincole are resident and not uncommon.

All three snipe occur, the great only on migration, but the others remain in fair numbers throughout the winter. Woodcock have been obtained more than once near Basra. Most of the European sandpipers, shanks, and curlews abound all through the cold weather. The black-winged stilt and avocet nest in the marshes. The little ringed and Kentish plovers are common residents, but the common ringed plover along with the Caspian and large sand-plovers only occurs on migration. Both the white-tailed and red-wattled lapwings are found throughout the year, the common lapwing only in winter in small numbers, at which season quantities of oyster-catchers haunt the mouth of the Shatt al Arab. The crab-plover, a black and white bird, is also to be seen there; it is an abnormal plover and lays its single white egg in a hole underground.

Among the gulls, the common, yellow-legged, herring, and black-headed are common in winter. The black and common lesser Caspian and gull-billed terns are all residents, and so too is the little grebe, while the great crested is a winter visitor and the black-necked a scarce resident.

Most of the rails are great skulkers and difficult to see, but of the more conspicuous the corncrake is a passage migrant, the water-hens, coot, and purple gallinule are resident. The wood-pigeon is very local, but has occurred at Basra, and the rock-dove swarms in most towns in a semi-domesticated state. In the summer the turtle-dove is very common, and wherever there are date-palms the Indian ring-dove appears to nest.

Four kinds of sandgrouse are found in Iraq, the large pin-tailed species being the most abundant. In some places it occurs in enormous numbers, and there is evidence that it migrates locally. Next in numbers comes the spotted sandgrouse, which is also subject to local movement but is not as a rule found in such large flocks. The

imperial sandgrouse is generally distributed but nowhere abundant; it departs in the spring to breed on the Persian plateau. The last species is the close-barred sandgrouse, but it is rare or very local. In the hilly country the see-see, a miniature partridge-like game-biid, is fairly common, and where there is thick scrub or cultivation the black partridge, or francolin, abounds. The quail is often seen on passage in spring and autumn.

Snakes, Lizards, &c.

In the Tigris and Euphrates there is a large soft-shelled tortoise (*Trionyx euphraticus*) which spends its life in the water and is confined to these rivers. About Basra and elsewhere the Caspian water-tortoise (*Clemmys caspia*) is abundant and easily distinguished from the former by its hard shell.

Wherever there is water the tessellated water-snake (*Natrix tessellatus*) is sure to be found, and on warm days may be seen in shallow water. In the palm-groves two kinds of racers (*Zamenis gemonensis* and *Z. dahlii*) are common. The former is very similar to the European racer, can readily climb trees, and preys on other snakes and lizards. One species, the Caucasian cat-snake (*Tarbophis iberus*), suffers much in this respect, and so too, do the skinks—small glossy brown or greyish lizards with two dark bands down the back.

In cultivated areas the sand-boa (*Eryx jaculus*) is not infrequent near villages. It lies in wait buried in the earth and on the approach of any kind of small animal or bird seizes it in its mouth and kills it like a python. Because of the similarity between the head and tail this snake is reputed to be double-headed. The curious spiny-tailed lizard (*Uromastix microlepis*) can be recognized by the whorls of spiny scales on the tail; the body is about 2 feet long, the tail about 8 inches. It is a vegetable feeder and makes a burrow from which it does not emerge until the sun is well up.

Both in the open and among bushes more than one kind of agama is likely to be seen basking in the sun; they are rather dull-coloured lizards with strongly keeled scales which give them a rough appearance. In the breeding season some assume a brighter dress. In the desert a small spotted lizard (*Phrynocephalus maculatus*) is coloured like the surrounding sand; when frightened it flattens itself out and is very difficult to see. The drier parts and deserts are also the haunts of Gray's racer (*Zamenis ventrimaculatus*) and of Clifford's snake (*Z. diadema*) which is pale buff with dark spots. Moila's snake (*Coelopeltis moilensis*) also occurs and is likewise of a pale buff with the skin

between the scales a bright red, which is very striking when the male raises the head. Another sand-snake (*Psammophis schokari*) calls for mention, on account of its wide range—Sahara to India—and great variation in colour. The largest of the Iraqi lizards is the desert monitor (*Varanus griseus*) which is not uncommon and grows to a size of over 4 feet, of which the tail is more than half. Other lizards and rats are its principal food, and it has a well-merited reputation for speed.

Several kinds of geckos are found in houses, caves, and ruins. They have specially developed scales on their feet which enable them to adhere to smooth surfaces. One of the more abundant is the rough-scaled gecko (*Gymnodactylus scaber*), of a sandy brown with dark spots, some four inches in length. There are other geckos which are entirely ground-lizards and do not have specially developed scales on the feet; they include the fat-tailed lizard (*Eublepharis macularis*), a small brownish species with a rather short and dumpy tail.

A form of European tree-frog (*Hyla arboria*) is not uncommon near Basra, and a toad (*Bufo viridis*) also occurs.

As far as is known there are only three snakes in Iraq whose poison is fatal to man. They are the horned viper (*Cerastes cornutus*), readily distinguished by the horn-like scales over the eyes; the blunt-nosed viper (*Vipera lebetina*), of a grey and brown colour with darker spots or cross-bands, and as much as 4 ft. 6 in. in length. The third species is the rare cobra *Naia morgani*.

Fishes of the Tigris and Euphrates

The true freshwater fishes of the Euphrates–Tigris system are dominated by the Cyprinidae, the carp family. There are no trout or salmon, although the finest *Barbus* has sporting qualities which have earned it among the British the name 'Tigris salmon'. There are a few catfish, and that strange fish the 'spiny eel', *Mastacembelus*, which has a long, tapering body, more compressed than in true eels, with a snake-like colour-pattern. Unlike the true eels, it has small, spaced spines along the back; its narrow snout is quaintly produced in three tentacle-like structures, two of which are tubular nostrils.

Among the Cyprinidae, the European genera *Alburnus* (the bleak genus), *Leuciscus* (the dace genus), and *Barbus* (the barbel genus) are represented by species peculiar to this region. The name *Barbus*, used in the broad sense, covers numerous forms spread over Europe, central Asia, India, Burma, and Africa. The Euphrates and Tigris harbour several species ranging from small-scaled forms, resembling in this feature the European barbel, to large-scaled forms recalling the

Indian mahseer. The 'Tigris salmon' is one of the small-scaled forms, *Barbus esocinus* of Heckel. It is recorded as attaining a weight of 300 lb. The largest known to have been taken by rod and line weighed 220 lb. and measured 7 feet.[1]

Besides these well-known genera there are species of *Varicorhinus*, a genus resembling *Barbus* but with the lower jaw armed with a sharp horny edge, and with the teeth of the throat compressed and truncated, not hooked as in *Barbus*; and of *Chondrostoma*, with a similar jaw, but with the teeth of the throat in one series instead of three. The carp-like genus *Cyprinion* is characteristic of this region, as is *Acanthobrama*, a bream with a spine in the dorsal fin. Small fishes allied to the minnow are found in the upper waters. One of the two species of *Aspius*, *A. vorax*, is peculiar to this river system, and its large mouth allows one to believe that it lives up to its name, as its European congener is known to do.

The genus *Garra* has different geographical affinities. It is well represented in India and extends through southern Arabia into east Africa. It is somewhat loach-like in form, but with larger scales than any loach; the sharp-edged mouth, on the lower side of the head, has a suctorial disk behind it. Together with the *Mastacembelus* and the two species of the catfish *Macrones*, the *Garra* represents an Indian element in this otherwise mainly palaearctic fish fauna. True loaches are recorded in the neighbourhood of Aleppo and of Mosul.

Two species of the tiny 'toothed carps', an Order including the well-known mosquito-eating fish, *Gambusia*, are present in fresh and brackish water.

In addition to the true freshwater fishes, the lower reaches of the rivers are invaded by marine species or by species which migrate into fresh waters to breed or to feed. The Indian shad, *Hilsa*, comes up to spawn and two grey mullets come up to feed. A collection from Basra contained these, an anchovy, a gar-fish, the well-known spotted Argus-fish (*Scatophagus argus*), one of the mud-skipper gobies (*Boleophthalmus*), and a sea-bream. No doubt puffers and sting-rays occur too, and the Ganges shark has been found as high as Baghdad. This last is a species well known to be at home in fresh water.

[1] The baits used for the 'Tigris salmon' are balls of dough and dates, chicken's and sheep's liver, etc. Above Baghdad the fish take spoons as bait.

CHAPTER V

HISTORY

I. SUMERIAN AND BABYLONIAN PERIOD

THE history of Iraq begins in the fourth millennium B.C. with the settlements of Sumer and Akkad, the southern and northern regions of the delta as it then was, and with the adjoining region and people of Elam, which comprised the lowlands and foothills east of the Tigris along the Karkheh and Karun valleys, now in Persian Khuzistan. The Jazira and the upper Tigris valley with the Kurdish foothills, a region originally known as Subartu, only begins to have a political history in the second millennium with the kingdoms of Mitanni and Assyria, though the northern rim of the Jazira, sometimes called the Syrian Saddle, was the easiest link between Syria and Mesopotamia.[1]

Sumer and Akkad (fig. 49)

Much mystery surrounds the origin of the Sumerian people and of their civilization, but it appears from archaeological excavation that the Sumerians came westwards through the Iranian plateau to Elam and the delta country, when settlement first became possible at the edge of the drying marshlands. There they established a primitive civilization, and from the simple 'culture' of their earliest villages a complex civilization grew up, which is supposed to have a certain likeness to the early Dravidian civilization of the Indus valley. By the middle of the fourth millennium B.C. the Sumerians were using copper and also bronze, possessed a primitive script which developed into the later *cuneiform* (p. 221), and had an established system of civil and religious government and law. Racially, and in language, they were neither Semitic nor Indo-European: some hold that they were directly or indirectly akin to the Dravidians who still form a large part of the population of

[1] The above terms have a varied application in time. For convenience *Mesopotamia* is used for the whole country down to the Arab conquest, *Babylonia* (which is Sumer and Akkad) for the delta south of Jabal Hamrin, and *Assyria* for the Tigris valley and the country to the east above Jabal Hamrin. There is no useful classical name for the Jazira (Introduction, p. 5).

The chronology adopted in this account can be brought into agreement with the system used in older books for Sumerian and Babylonian First Dynasty dates by the addition of 300–350 years. The relative order of events is not affected; certain great gaps have simply been closed up.



87. *The Sumerian Gudea, Patesi of Shirpurla*



88. *Sumerian type from Tello*





89, 90. *Akkadian figure in alabaster*



91. *Figures of gods and worshippers from Akkadian Eshnunna (Tel Asmar)*



92. *Merodach-Baladan, Chaldean king of Babylon, and a henchman*

peninsular India, but the anthropological evidence is inadequate and they may have been of Caucasian origin. They described themselves as 'the dark-headed people', apparently in contrast with the fair-headed people of Subartu, but their type is only known from sculptures and relief carvings. They failed to maintain their racial stock, which was never replenished from its original source, and eventually merged with the Semitic-speaking element.

In Akkad the population consisted of Murtu or Amurru (Amorites) who came east from Syria, probably after the Sumerians had reached the lower delta, and were reinforced very early in the second millennium by fresh immigrations (p. 210). Their language, Akkadian or Babylonian, was Semitic, but racially they do not seem to have closely resembled the 'Semitic' tribesmen of Arabia who supplied the main body of the Aramean and Chaldean immigration at the end of the second millennium B.C. (p. 215), and of later movements such as that of the Moslem Arabs. The Akkadians adopted the general civilization of Sumer, including the cuneiform script. In religion, however, they were the predominant influence, Sumerian deities being gradually Semitized.

In Subartu, including the later Assyria, there was originally a non-Semitic population and a non-Sumerian civilization. This 'Subarean' people was probably of Anatolian origin and included fair-headed elements. Their civilization was that of north Syria, a distinct Mediterranean 'culture' first identified at Tell Halaf.[1] Subarean race and civilization seem gradually to have been replaced or absorbed by Semitic and Sumerian influences, mainly as a result of a second Amurru invasion. The population of Subartu was always rather mixed, receiving constant injections of Anatolians and Indo-Europeans (pp. 211, 215).

In Elam, through which the Sumerians reached Mesopotamia, the civilization was Sumerian at an early period and the population may have been akin by race, though probably not by language. Despite possession of a common and coeval civilization, the peoples of Elam, predominantly a hill country, were seldom pacific and constantly raided the cities of the plains of Sumer and Akkad.

Sumerian Domination

Sumer was the marshy coastal region adjoining the head of the gulf, and several of its cities were close to the sea and the distributaries of the Euphrates (fig. 14, I, II). It is worth noting that before the

[1] See *Geographical Handbook of Syria*, B.R. 513, p. 103.

formation of the great swamps by the advance of the Karkheh-Karun delta the country, though intersected by channels like the Nile delta, would have been far less difficult for settlement than it was in Abbasid or modern times when the delta had ceased to be normal.

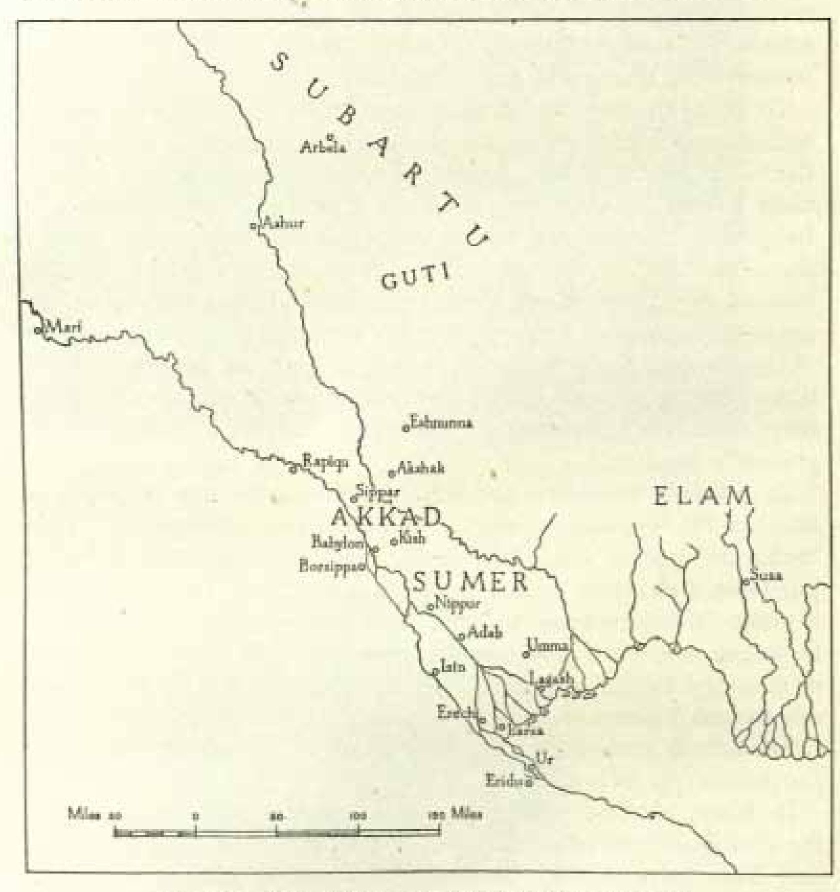


Fig. 49. *Mesopotamia in the third millennium* B.C.

The Sea Land of the second and first millennia consisted of the marshlands of the Tigris that became increasingly inaccessible with the advance of the deltas (fig. 14, III).

The cities of Sumer—Nippur, Umma, Lagash, Erech, Larsa, Ur, Eridu were the chief—and those of Akkad—Kish, Akshak, Agade, Babylon, Sippar, Eshnunna—were each ruled by a *Patesi* or *Sar*, who was both hereditary governor and high priest. A powerful



93. *General view of Kish*

94. *The excavations at Ur*



95. *Excavations at Khafaje (Akshak) showing the oval sanctuary from the north-east*

96. *The ruined Ziggurat at Birs Nimrud (Borsippa)*

Patesi might master several cities and rule them as *Lugal* or king. A-Anni-Pada of Ur about 3100 B.C. and Ur-Nina of Lagash, about 3000, are the earliest known rulers. Somewhat later Eannadu of Lagash was a great military leader who made his city paramount over Umma and Kish, Erech and Ur, defeated Akshak, and drove out an incursion of Elamite tribesmen. The last king of Lagash, Urukagina, was notable as a civil administrator, preventing corruption, reforming taxation, codifying and improving laws. After him the power of Lagash was overthrown by Lugal Zaggisi of Umma and of Erech (*c.* 2500) who was supreme throughout Sumer and much of Akkad, and who finally led his army across the Euphrates into Syria, and 'made straight his path from the Lower Sea, from Euphrates and Tigris, to the Upper Sea (i.e. Mediterranean)'. This was the beginning of the domination over Syria which came to be exercised by the powers ruling in Mesopotamia in the following millennia. Mari,[1] a Sumerian town near Hit on the Euphrates, and Rapiqu nearer Falluja, were outposts linking Syria with Babylonia.

Sarrukin of Akkad. After Lugal Zaggisi the hegemony of southern Mesopotamia passed from the Sumerians to the Semites of Akkad. Sarrukin (2528–2473), king of Agade and Kish, took Lugal Zaggisi captive and became master of the Sumerian cities of Erech and Ur. His power extended to the Upper Sea, to the 'Cedar Forest' of Lebanon and the 'Silver Mountains' of the Taurus, and he made his arm felt in Elam. Later Babylonian chroniclers, who knew him as 'Sargon of Agade' (not to be confused with the Assyrian Sargon) rightly regarded him as the founder of their people's greatness. Sarrukin and his successors ruled all Babylonia—the delta lands of Sumer and Akkad—and extended their power not only westwards into Syria but up the Tigris northwards into Assyria and Subartu and eastwards into Guti, the Sulaimaniya region of Kurdistan. Naram-Sin (*c.* 2450), who set up a rock relief near modern Diyarbekir in Turkey and at Susa (*mod.* Shush) in Elam, called himself King of the Four Quarters of the World.

End of Sumer. After 2370 the power of Akkad weakened and the mountaineers of Guti overran the land, until native supremacy was restored by the Third Dynasty of Ur (2277–2170). Dungi or Shulgi, second of the line, who took the new title of 'King of Sumer and Akkad', extended his influence as far as Naram-Sin had done. These kings were not Akkadians but Sumerians, and resisted the growing influence of Akkad. The last of them was carried away captive by

[1] See *Geographical Handbook of Syria*, B.R. 513, p. 106.

invaders from Elam. After this the power of Sumer faded away and an Elamite dynasty was established at Larsa. The last remnant of Sumerian independence was in the southernmost region, the Sea Land,

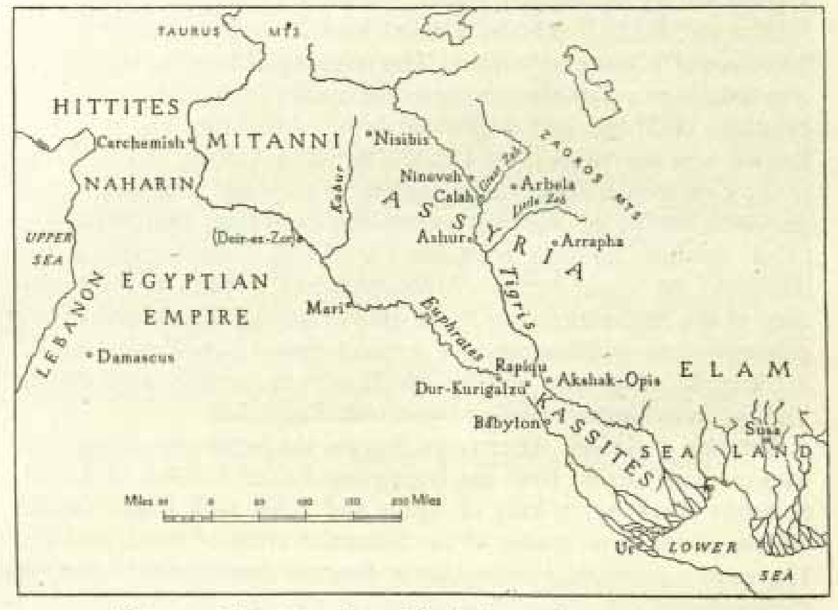


FIG. 50. *Mesopotamia and Syria from 1600 to 1300 B.C.*

around and east of the Tigris delta (fig. 50), where Sumerian dynasts held out till overthrown by the Kassites about 1710.

Hammurabi and Supremacy of Babylon, c. *1900–1700 B.C.*

About 1930 a fresh wave of Semitic-speaking Amurru had entered Mesopotamia from south Syria or Palestine and established their power at Babylon. It was their energy which transformed Babylon, hitherto a place of minor importance, into a capital city, and its god, Marduk, into a king of gods, identified with Bel Enlil of Nippur as Bel Marduk. When Hammurabi was king (*c.* 1792–1750) Babylon ruled all the cities of Akkad, but Rimsin, the Elamite dynast of Larsa, rivalled his power in Sumer. Rimsin's power was not destroyed till 1764; all Sumer was then added to Hammurabi's kingdom, and war carried into Elam itself. In the north, the successor of King Shamsi-Adad I of Asshir or Ashur (Qala Sharqat), which now first emerges into history (p. 214), was subject to Hammurabi and provided him with troops.

Hammurabi thus, like Sarrukin, created a temporary unity in Mesopotamia, but his great fame rests on his skill as an administrator and his codification of Babylonian law. The very titles of his many dispatches and letters, preserved in the British Museum, reveal his activity. Typical are: 'Orders to finish clearing a canal in the territory of Erech'; 'Orders for the investigation of a charge of bribery'; 'Inquiry about the misappropriation of temple revenues'; 'Orders for ship captains to proceed to Babylon with their ships'. As a lawgiver Hammurabi is of no less importance; he did not invent his laws but collected in one code and published the ancient Sumerian laws, which he greatly improved. There was greatness also in his organization of the Babylonian kingdom, to which he gave a structure that enabled it for 1,200 years to survive military and political disasters that would have swept away a weakly organized state.

Kassite and Mitanni Dominance, 1600–1400 B.C. (fig. 50)

One of these disasters came about 1600 when a wave of Anatolian invaders, the first of the Hittites to penetrate Babylonia, ravaged the land, sacked Babylon, and disappeared. The blow from the west was complemented by another from the east. The Kashshi or Kassites, an Indo-European people, had been pressing down from the Zagros into Babylonia since about 1740. They eventually displaced the line of Hammurabi and established a Kassite dynasty at Babylon at the end of the seventeenth century. The Kassites popularized the horse in western Asia, and thereby revolutionized warfare. The chariot and the mounted bowman became the core of the armies of Asia. Kassite rule at Babylon lasted for 400 years under kings of varying vigour till about 1180 B.C. This long period is not well documented until the fourteenth century (p. 212), but it seems that Babylonia lost the dominant position established by the First Dynasty. The focus of influence shifts to the north-west of Mesopotamia, where, while the Kassites were establishing themselves in the delta, another Indo-European people had intruded and were building up a powerful state out of the Subarean communities of the Jazira, extending from modern Iraq into north-eastern Syria. This was the kingdom of Mitanni. Its strength was not in numbers but in military organization, and its princes were more active than the Kassites. They made the young kingdom of Assyria tributary in the east, and in the west they arrested for a time the power of the Hittites, who were beginning to swarm out of Anatolia into Syria. The Mitanni also

made themselves paramount in Naharin, the steppe country between Euphrates and Orontes. They thus controlled the whole of the great route from Aleppo to the Tigris. Neither Mitanni nor Kassites affected the civilization of Mesopotamia. They were simply a ruling class of uncivilized but not brutal invaders, who adopted the way of life and even the religion of the countries which they ruled.

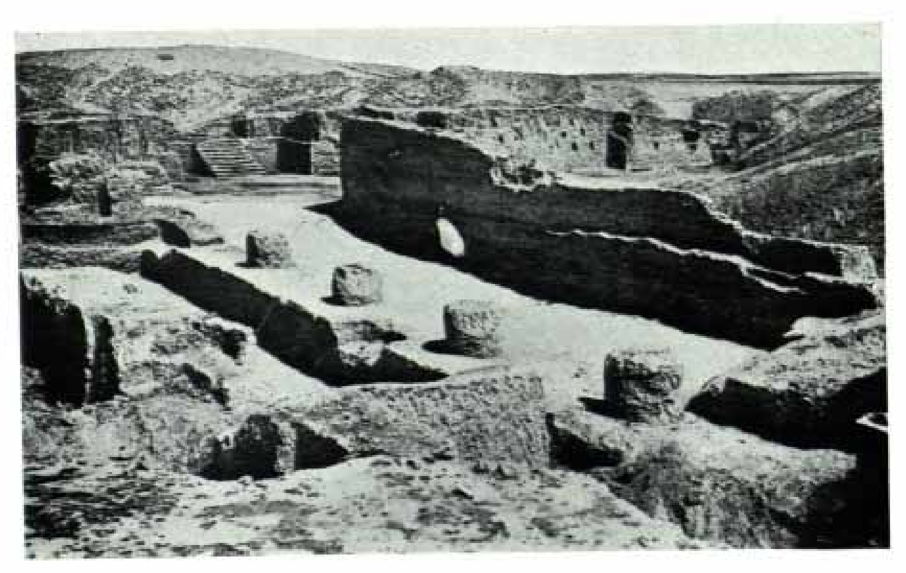
Egyptians and Hittites, 1500–1300 B.C.

In the fifteenth century B.C. another foreign power, Egypt, intervened drastically in the affairs of the Mesopotamian states. A nationalist upheaval had followed the expulsion of the Hyksos invaders who had scourged Egypt for more than 150 years (*c.* 1750–1573) and the great kings of the Eighteenth Dynasty, notably Thothmes III (1501–1447), made all Syria tributary as far as the Euphrates, and checked the influence in Syria both of Mitanni and of Babylon. Later Amenhetep II (*c.* 1447–1421 B.C.) invaded Mitanni itself and made it a subject-ally of Egypt, while Thothmes IV (1421–1412) confirmed the alliance by a political marriage with a Mitanni princess who became his chief wife.

The Egyptian conquest of northern Mesopotamia meant that the two great and distinct civilizations of Egypt and Babylonia were directly intermingled. Both Mitanni and its client state of Assyria were affected. Remarkable evidence of this interfusion exists in the letters, found at Tel el Amarna, of King Dushratta of Mitanni to Amenhetep III (1395–1375) and his wife Tii, and to Amenhetep IV Akhnaton (1375–1358), the famous religious heretic and father of Tutankhamen. Presents were exchanged between the kings, and the holy statue of the goddess Ishtar of Nineveh was twice sent on a visit to Egypt. The Kassite kings of Babylon, who also corresponded with these pharaohs, maintained their equality in alliance. The letters of Burrubiash (Buruniabash *c.* 1365–1355) to Amenhetep IV are directly concerned with trade and the protection of trade routes. 'If thou dost not kill these people they will come again and will kill my caravans, or even thy messengers, and the trade between us will be destroyed, and the people [of Canaan] will become estranged from thee.' This Burrubiash had protested to Amenhetep against his treatment of the Assyrian king Ashur-Uballit, who had thrown off the yoke of Mitanni (p. 214), as an independent monarch. But later either he or his son had to admit the independence of Assyria and even married an Assyrian princess. Other events were clearing the road for the rise of Assyria.



97. *Ishtar temple at Babylon*



98. *Portico of temple at Kish*

99. *Human-headed bulls guarding the palace gateway at Khorsabad*

100. *General view of the Khorsabad excavations*

In Anatolia the power of the Hittites or Khatti (known also as Goyyim to the Semites) had been increasing. This people, native to the land and neither Indo-European nor akin to the Semitic-speaking population of Mesopotamia, had its own civilization, though this was not so finely developed as that of Egypt and Babylon. Their capital, Boghaz Koi (Boğazköy) in Cappadocia, became the centre of a powerful state under Shubbilu Liuma (*c.* 1385–1345 B.C.). Earlier raids had led to the establishment of some Hittite principalities in northern Syria, one of which, Carchemish, controlled an important crossing of the Euphrates on the routes through Mitanni to Babylonia or Assyria. Shubbilu Liuma exploited the weakness of Amenhetep IV to establish his power throughout north and central Syria, while leaving Palestine to Egypt. Meanwhile the strong king Dushratta of Mitanni died, anarchy prevailed, and Shubbilu Liuma took possession of the country, maintaining on the throne a Mitanni prince married to his daughter. 'In order that the land of Mitanni, the great land, may not disappear, hath the great king Shubbilu Liuma summoned it to life for the sake of his daughter', so he wrote in his chronicle, found at Boghaz Koi with many other documents. His successors, however, ruled Mitanni and Syrian Naharin directly, with Carchemish as their central fortress and base. The Hittite kings of the fourteenth century did not attempt to interfere with the growing power of the Assyrians except to exclude them from Mitanni, which Ashur-Uballit had attempted to seize on the death of Dushratta.

Rise of Assyria

By the third millennium the kernel of the future Assyria existed in the small city-state of Ashur and its territory, the plains around Qala Sharqat, cut off from Babylonia by the Little Zab and the Jabal Hamrin. Its population was at this period little more than a colony of Amurru in a region of fair-headed Subareans, who peopled the Jazira and most of the plains and foothills east of the Tigris and north of the Jabal Hamrin. The wealth of Ashur was based mainly on agriculture which, with a more favourable climate than Babylonia, was far less dependent on irrigation, but Ashur was also the centre for the vital trade in copper which came from the mining regions of the Taurus. Part of Ashur's importance derives from the fact that it is the Mesopotamian terminal of the route from the Mediterranean by the Jazira. The civilization of Ashur was already Sumerian, with remarkable and distinct native elements in law and

political institutions; its language was a Semitic tongue akin to the Akkadian. Later in the third millennium the power of Ashur extended into the plain of Nineveh (Mosul), but these regions, and also the communities of the Erbil and Kirkuk plains, were controlled politically by the Sargonid dynasty of Akkad and the Third Dynasty of Ur. The general civilization of Assyria was thus steeped in Babylonian influences and the Subareans were gradually Semitized.

The First Kingdom, 1800–1100 B.C.

The kingdom of Ashur was enlarged to include the plain of Erbil by Shamsi-Adad I (*c.* 1800), whose influence also reached across the Jazira to the Euphrates near Deir ez Zor and across the Little Zab into the Kirkuk plain. But the suzerainty of Babylonia was reasserted by Hammurabi, and in the following centuries expansion was limited by the strong Mitanni kingdom in the Jazira, and the Kassite dynasty in Babylonia. Farther afield the incursions of Egyptians and Hittites into Syria were also repressive factors. But this external pressure produced a great reaction. Ashur-Uballit (1380–1350) made Assyria an independent power by establishing an armed national militia, which had annual exercises when not at war. This gained from Egypt the recognition of Assyria as the equal of Babylon. Ashur-Uballit intervened in Mitanni and carried his power eastward into the Zagros. Henceforth all Assyrian kings endeavoured to keep the hill tribes of the Zagros under their control, though the exact extent of their realms in Kurdistan and beyond cannot at present be fixed. Outside the borders of his kingdom Ashur-Uballit was strong enough to set his own nominee Kurigalzu II (1355–1315) on the throne of Babylon. But Kurigalzu was no puppet, and the Kassite dynasty maintained its independence successfully for another century.

The successors of Ashur-Uballit struck directly at the Hittite power in Mitanni while the Hittites were immersed in war with Egypt, and took most of the country westward to Nisibis and Carchemish. Thus the kingdom reached from the Zagros to the Euphrates. Its northern limit was the Judi Dagh, and the southern border lay in Babylonia, well south of the Jabal Mak-hul, between Rapiqu on the Euphrates and the neighbourhood of Akshak and Opis on the Tigris; east of the Tigris the Little Zab was the southern limit of Assyria proper, the Kirkuk (Arrapha) region being a dependency which was gradually Assyrianized. The conquest of Mitanni alarmed and allied the Hittites and Babylonians. But this alliance

divided opinions in Babylon. A strong party, particularly the commercial class, preferred Assyrian to Hittite influence, because their northern trade routes ran across areas of the Jazira which were coming more and more under direct Assyrian control. This group welcomed the Assyrian Tukulti-Enurta I when he overthrew the ruling Kassite king, took the Babylonian crown for himself, and for the first time in history united the three lands of Mitanni, Babylon, and Assyria—the Jazira, the delta, and the northern plains—in one kingdom (1248–1241).

This union did not long survive Tukulti-Enurta because Assyria was weakened (*c.* 1190–1180) by the invasion of a great horde of Anatolian peoples, Hittites and others, who were driven eastwards under pressure from the so-called Peoples of the Sea in western Asia Minor (where movements had been taking place which led to the eventual establishment of the Greeks on the Aegean seaboard). This invasion led to the loss of the conquests of Tukulti-Enurta in the Jazira, while in the south the struggle of Babylon with Assyria was continued by the last of the Kassite monarchs (*c.* 1180) and by a new native dynasty which produced a great king, Nebuchadnezzar I. He, though unsuccessful against Assyria, reasserted Babylonian power in Elam and in eastern Syria (*c.* 1125). Assyria steadily reduced the outlying domains of Babylon during this century, taking from her areas both east in the region of the Little Zab and west in the Jazira.

In the reign of Tiglath-Pileser I (*c.* 1107) the Assyrian power first burst violently from its limits. This king drove the remnants of the Anatolian invaders out of the Euphrates valley and crossed the Taurus into Anatolia, where he destroyed the remnants of the Hittite power, already crumbling under pressure from the western barbarians. A campaign in Syria took him to the coast, when he was recalled to deal with an invasion from Babylonia, which he swiftly overran and reduced to impotence. After Tiglath-Pileser's death the expansion of Assyria was violently checked. His wider conquests proved ephemeral and even Babylonia regained independence.

The Aramean Migration

The reason for this check is to be found in the movement of beduin peoples out of Arabia into the Syrian and Mesopotamian area. It was in this period, when the Hittite power was destroyed, Egypt weakened, and Assyria not yet at her full strength, that the Hebrews built up the kingdom of Israel, and Aramean tribes established kingdoms from Damascus northward through central Syria to the

northern Jazira. There was a similar movement of 'Chaldean' tribesmen into Babylonia itself, until the whole country was partitioned between Chaldean tribes. These migrations continued in the first millennium with such effect that Aramaic had replaced Babylonian

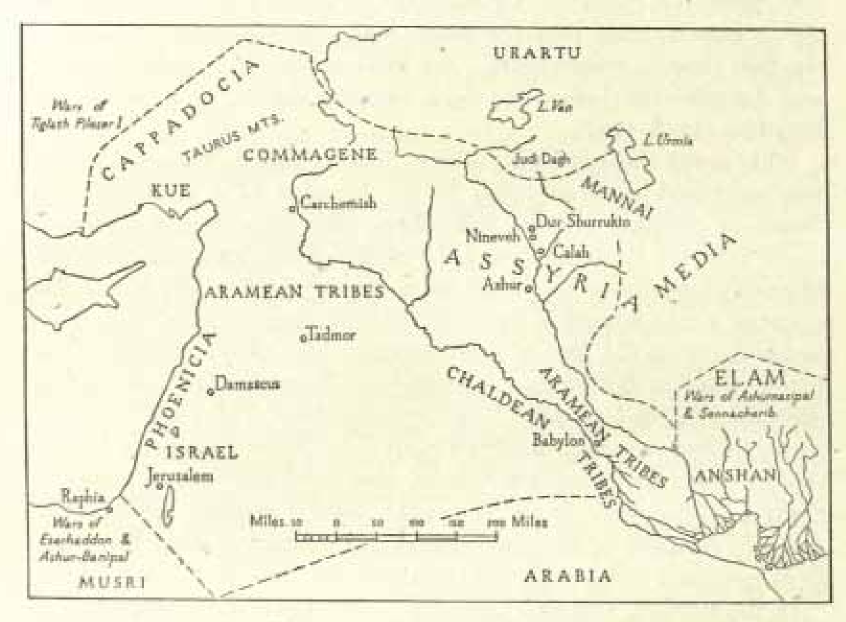


FIG. 51. *The Assyrian Empire*

as the common language of the Middle East by the sixth century B.C., and later ages confused Babylonians with Chaldeans. These Arameans and Chaldeans, who introduced the camel from Arabia, were the first true beduin folk to disturb the settled civilization of Mesopotamia. The Assyrians in the eleventh and tenth centuries were busy preventing the 'nomadization' of their country. Hence there grew up a strong central government based on the kingship which made possible the empire of the ninth century. Had it not been for Assyria the settled civilization of Asia might have decayed irretrievably at this time.

Assyrian Empire, 883–612 B.C. (fig. 51)

The onward march of Assyria was resumed by Ashur-Nasirpal III (883–859) and Shalmaneser III (858–824). These kings established

the Assyrian Empire. What distinguished them from their predecessors was the extreme barbarity and cruelty with which all conquered peoples were treated. But apart from the conduct of war there was no general barbarization of the Babylonian civilization under their rule (p. 221). Assyrian military power was built up on the extensive use of iron for weapons and upon superior organization; stronger fortresses with battlemented walls were built, and warfare included battering rams, scaling ladders, and other heavy weapons of siege. In the open, Assyrian supremacy was won by military skill and endurance, and particularly by the accuracy of their infantry bowmen, supported by cavalry armed with bow or javelin. Until the Medes made cavalry the main arm no state could stand against the Assyrian infantry. Their forces now consisted of a small standing army, which approximated to an age-class, strengthened in the larger wars by a levy of the whole population; the resources of the Assyrian Empire consisted in the man-power of Assyria and the wealth of Babylonia, and the empire collapsed when the former was exhausted (photos. 101–104).

Ashur-Nasirpal III in a series of great campaigns restored and made permanent the conquests of Tiglath-Pileser: Naharin and Phoenicia in Syria, the upper Euphrates region of Commagene, and the upper Tigris valley. To Shalmaneser was left a stubborn and inconclusive struggle with the kings of southern Syria, Benhadad of Damascus and Ahab of Israel, and their heirs. He was more successful in the north-west, where the Cilician plain (Kue) was conquered, and in the south, where he made Babylonia a vassal state, aided by the merchant class who found that their trade benefited by the firm Assyrian control of neighbouring lands. Later kings riveted this control more firmly upon the subject peoples and extended it to Israel and Damascus (803 B.C.). The consolidation of the Assyrian Empire was achieved by the first king of a new dynasty, Tiglath-Pileser IV (745–727). He overawed and destroyed the rebellious princes of Syria and Palestine, carried the empire to the frontier of Egypt, and once more united Mesopotamia by 'taking the hands of Bel' and ruling Babylonia as king of Sumer and Akkad. Tiglath-Pileser IV gave the empire a skeleton organization by establishing residents or *kipi* at the courts of subject princes, and military governors (*shuparshako*) or district lords (*bel pikhati*) in the annexed regions, which included the Cilician plain and most of Syria except Palestine. A second device of empire was the transplantation of conquered peoples: this weakened the native population, while the

exiles could only survive in their new country by supporting the Assyrians. This fate overtook Israel in the reign of Shalmaneser V (727–722 B.C.), when Hoshea unwisely refused tribute in expectation of a clash between Assyria and Egypt (2 Kings xvii. 4).

The clash with Egypt came under Sargon who made Egypt tributary after a victory at Raphia in 720, but did not enter the country, perhaps because the Assyrians were distracted by fresh powers which arose in Anatolia and Persia. In the area of Lake Van and Ararat the kingdom of Urartu became a permanent threat to Assyria: its southern frontier was the Judi Dagh within 100 miles of Nineveh.[1] Tiglath-Pileser IV in 735 and Sargon (*c.* 720–711) crushed but could not destroy the menace; as a partial remedy the Assyrians created, on the flank of Urartu, the dependent state of Mannai in the Urmia region, composed partly of Iranian Medes, an Indo-European people now moving westward, and partly of transplanted tribes, while Sargon established control of the new kingdom of Media itself. Farther west Kue (Cilicia) was threatened by the rise of the Phrygian kings in western Anatolia who allied themselves with Urartu. Sennacherib (705–681) first felt the strain of the empire's huge size. He no longer regularly conducted campaigns in person, and was the first king to use foreign troops in his army, an expedient which became increasingly necessary. It was in his time that Media was lost. Esar-Haddon (681–669) and Ashur-Banipal, faced by rebellions in Egypt, invaded and conquered the country. Though successful, this proved an immense drain on the man-power of Assyria and a main cause of her sudden fall.

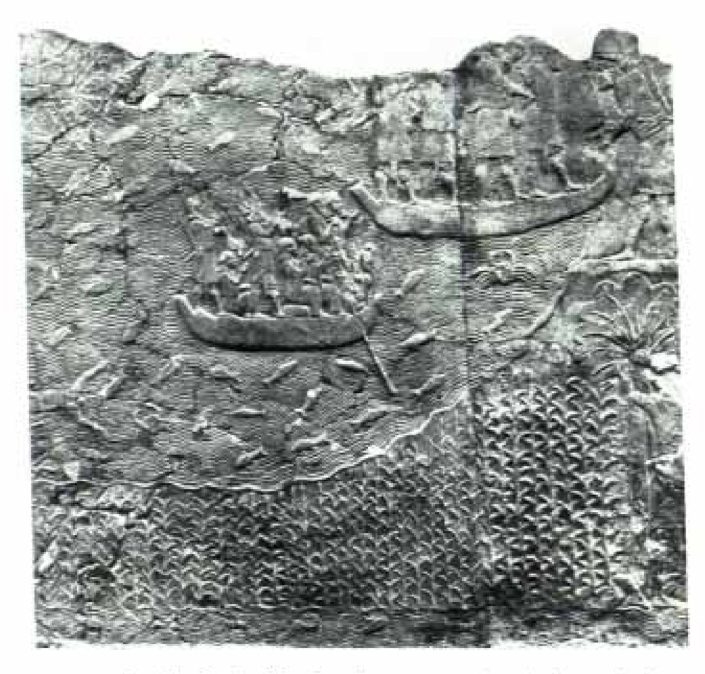
Babylonia and Elam. After Tiglath-Pileser IV, Babylonia was either under direct Assyrian rule or governed by native princes subject to Assyria. There were persistent rebellions fomented by the kings of Elam, and also by Chaldean dynasts who had established themselves in the Sea Land and claimed the Babylonian throne. The most notable of these Chaldean usurpers was the biblical Merodach-Baladan (722–693), a contemporary of Isaiah. Disaster overtook Babylon itself in 689 when Sennacherib, weary of rebellions, destroyed the city and removed its population. Yet within thirteen years the city had been completely restored and its population had returned. To pacify the south, first Sennacherib and later Ashur-Banipal invaded Elam. Sennacherib's attempt was unsuccessful, though supported by a navy built and manned on the upper Euphrates by Phoenicians, who thence sailed down to the gulf. Ashur-Banipal's

[1] The route for raids was by the Bitlis pass.

101. *Sennacherib's pikemen advance to the attack*

102. *Archers and slingers at a siege*

103. *Assyrian galley of Phoenician type*



104. *Battle of the Marshes in 700 B.C. fought in mashufs*

invasions in 659 and 648 succeeded. He destroyed the ancient kingdom and its capital Susa, and thereby enabled the 'Achaemenid' rulers of the Indo-European inhabitants of Persis (*mod.* Fars) to annex the central region of Elam, known as Anshan (photo. 103).

When Esar-Haddon (681–669) and Ashur-Banipal (669–625) were immersed in Egyptian wars, hordes of Gimirrai or Cimmerians entered Anatolia from the Caucasus. They destroyed the Phrygians, weakened Urartu, and threatened to cross the Cilician Gates. In the north-east a worse danger arose. A similar horde of Scyths made alliance with the Medes and Mannai of the Zagros and in the last days of Ashur-Banipal drove through the empire to the borders of Egypt (*c.* 628–625), sweeping away the western provinces of Assyria.

Fall of Assyria and Revival of Babylon, 612–539 B.C.

The continuous wars of conquest and reconquest necessary in each reign had exhausted Assyrian man-power. Only a remnant of the old fighting forces remained, and the kings after Sargon employed an increasing number of inferior provincial troops to fill the gaps. On Ashur-Banipal's death Babylon revolted under a native king, Nabopolassar (625–604), who joined with Uvakhshatra (Cyaxares) king of Media in a combined assault on Assyria. The allies sacked Nineveh in 612 and destroyed the Assyrian army, blows from which there was no recovery. The Medes took the territory of Assyria north of the Little Zab, while southern Assyria, including the Jazira, was occupied by Nabopolassar. For a time the Neo-Babylonian kings, Nabopolassar and Nebuchadnezzar II (604–562), succeeded to the imperial position of Assyria in the south-west. The Egyptian Pharaoh Necho, who sought to seize Syria, was driven back to Egypt, and Syria acknowledged Babylonian hegemony. The intrigues of Necho and his successor only led astray the kings of Judah and caused Nebuchadnezzar to carry off the bulk of the Jews to their final captivity (596, 587 B.C.). The Babylonian Empire lacked a sound military foundation but persisted for half a century because the Medes were occupied in Anatolia. The warlike Nebuchadnezzar, unpopular with the priests and the merchant class of Babylon, was succeeded by the peaceful Nabonidus. This king was a scholar and archaeologist whose main interest was the study of the history and records of his country. He left administration and defence to a vice-regent, his son Belsharuzar, the Belshazzar of the Bible, who too late saw 'the writing on the wall'.

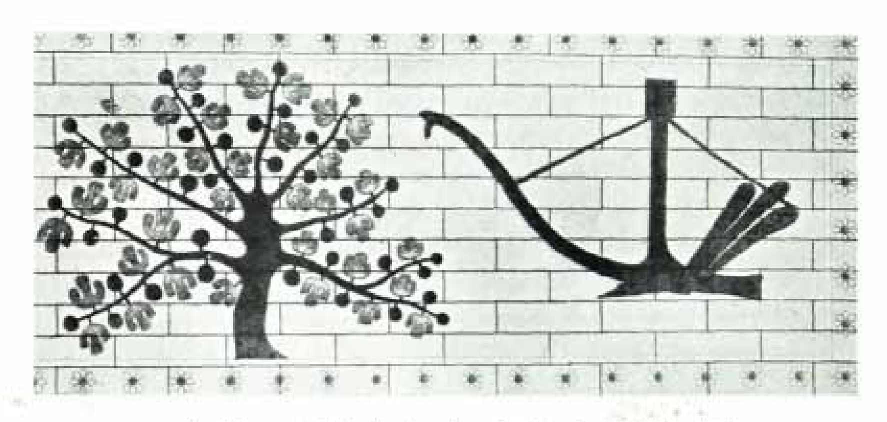
Babylonian Way of Life

Agriculture and Commerce. For three thousand years down to the Persian conquest (p. 224) southern Mesopotamia enjoyed a civilization which in essence remained unchanged. From the end of the Akkadian period onwards the Babylonians elaborated ideas inherited from an earlier epoch. This civilization was based on an agriculture dependent on river and canal irrigation. The stability of the civilization derived from the complexity of the irrigation system and the interdependence of each farmer on his neighbour. Central authorities and a recognized legal system were prime necessities if the canals were to be maintained. Likewise the kings, from the earliest Sumerians onward, saw their interest in the maintenance and extension of the canals. In the south it is still possible to trace the banks of canals which may belong to the ancient system, but their identification with those mentioned in ancient sources is extremely hazardous until the Neo-Babylonian and Achaemenid period. If the character of the civilization was determined by the irrigation problem, its mere existence was made possible by the great productivity of the soil, particularly in cereals. The date-palm was also of great importance, and the breeding of sheep was a third source of wealth.

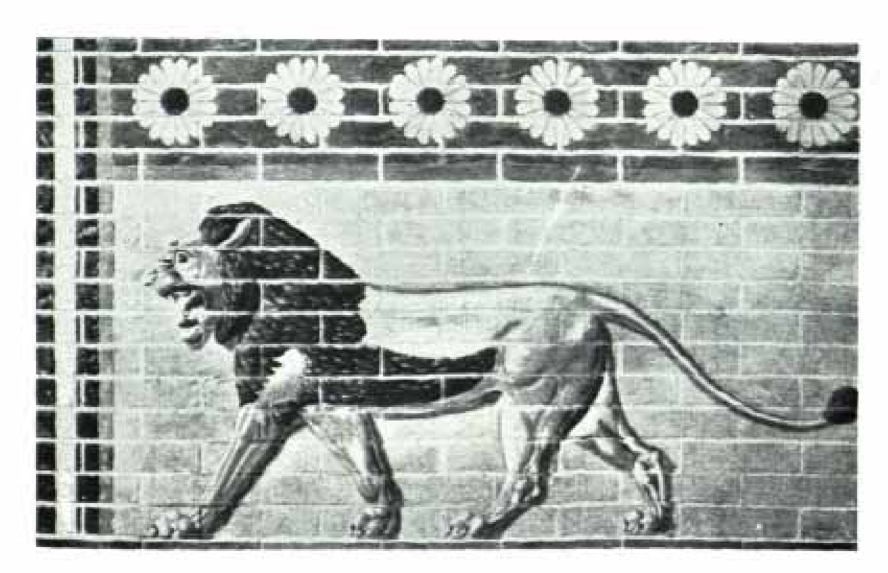
The importance of trade is more difficult to assess. It was only towards the end of this vast period that export and transit trade became of serious value in the then civilized world. But Sumer and Akkad possessed a highly developed internal commerce and a simple system of commercial law in the earliest recorded age. Ashur was trading with the mining towns of the Cappadocian Taurus in the third millennium, and trade objects from the Indus valley are found at Ur and elsewhere in the Sargonid period. The whole of the extensive metal industries and the provision of arms depended upon the import of copper, a trade which must have existed from the fourth millennium. But commercial motives dominated Babylonian politics only in the Assyrian period, when Babylonian merchants were concerned for the protection of the trade route through the northern Jazira to Syria (p. 215). It was the Persian Empire which made Mesopotamia, both northern and southern, the general entrepôt and exchange of nearer Asia, including Persia and Arabia. The use of the Persian Gulf as a sea route to India dates only from the explorations of Alexander the Great. It seems to have been of only



105. *Cylinder Seal showing worshippers and a god in the time of Dungi of Ur*

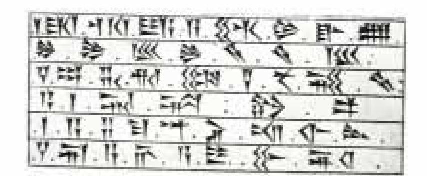


106. *Tree and plough in coloured tiles from Khorsabad*



107. *Lion in enamelled brick from Babylon*

108. *Sennacherib's Prism, describing his wars, including his campaign against King Hezekiah of Judah*



109. *Babylonian cuneiform script*



110. *Description of Babylon in late cuneiform*

local commercial importance even in Assyrian times, when no large vessels sailed upon it.

The use of precious metals as a basis of sale and exchange was familiar from early times, though a coinage did not exist. The shekel of silver was a weight, not a coin, and was commonly used as a measure of value by which to adjust barter transactions. The establishment of an imperial coinage in the sixth century B.C. by the Persian king Darius—in imitation of the Lydian—together with the security of the roads, gave a great impetus to international trade. Earlier, a profitable caravan trade existed but was hazardous (p. 212). There certainly were great trading-houses at Babylon, and there was also considerable movement of goods by round-boats and rafts down the rivers and along the gulf. But the basis of wealth in the Akkadian and Babylonian period was internal, and depended mainly, not on trade or industry, but upon the high productivity of the land. The kings and temples received their dues in kind and accumulated huge stores of produce. The kings used this capital to feed and maintain men either as soldiers for the imperial wars or as labour to build their huge fortresses, palaces, and temples. The temple priests put their capital to a different use, and became the main centres of commerce and banking or money-lending. The growth of commerce established a merchant class in the towns, who were also a land-owning class, because land was the only form of permanent long-term investment. But for the mass of the people, peasants and artisans alike, life then as now was close to subsistence level.

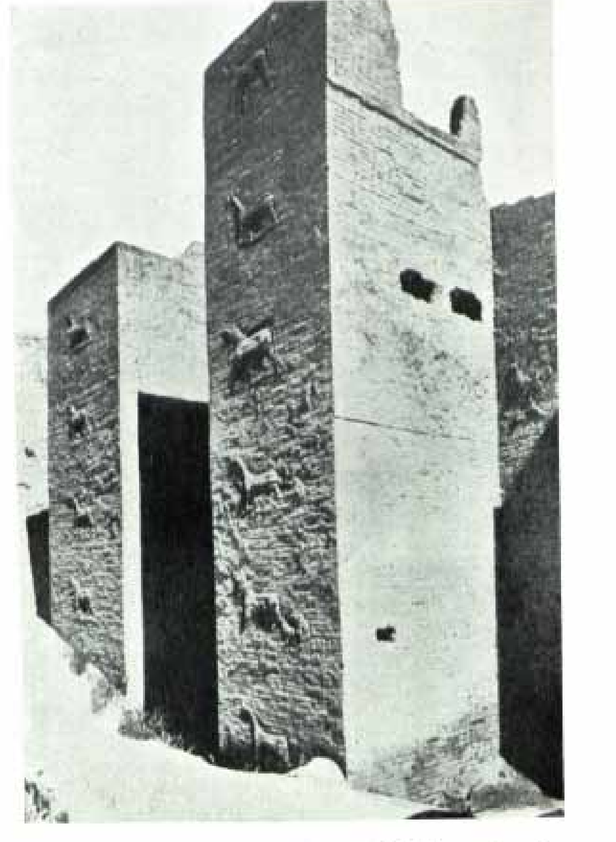
Law. Intellectually, the Babylonian civilization consisted of its legal system, and of its religion, with a religious and mythological literature. The continuity of the legal system and of the sense of law is remarkable. The well-known code of Hammurabi is noted for the simplicity and relative fairness of its commercial and social arrangements, though as in all primitive codes penalties were severe. The code was accessible to the literate and there was a professional judicature, originally based on the temples and priesthood but later appointed by the kings, which maintained the Hammurabi tradition, enlarged by case-law and precedent, down to the Hellenistic period. This feeling for the sanctity of law was transmitted to the Assyrians, despite their brutality in foreign conquests. 'If the king does not hear the law, his people will perish, and his power will pass away', wrote Ashur-Banipal. The limitations of literacy were, however, great, because Babylonians used the complicated 'cuneiform' script. The wedge-shaped signs, incised on clay tablets or cylinders, were

partly syllabic and partly alphabetical and partly 'ideographs' representing a whole word. Hence knowledge was accessible only by the mediation of trained scribes, and the temples with their professional class of learned priests became the storehouses of knowledge. Yet despite the cumbersome complexity of cuneiform it became the common medium of the Middle East, and was adopted as the script of diplomacy by Egyptians, Hittites, and later by Persians (photos. 108–110).

Religion. The religion of Babylonia was based on the polytheistic nature-worship common to all the ancient Mediterranean peoples. Particular forces of nature were personified in human form and named: the sun as Shamash and Anu, the moon as Sin, rain or water as Nabu, thunder and lightning as Adad, and the mystery of growth and reproduction as Nana or Ishtar, the 'mother-goddess' of Babylonia. This multiplicity of gods and attributes, reproduced with different names within each separate community or tribe, was eventually organized by priestly learning into a pantheon, but the Semitic polytheism differed from that of Greece and Rome in the great stress laid on power. The notion of one all-powerful deity, the lord of hosts and lord of lords, terms often applied to Bel Marduk and Enlil (originally Sun-gods), is common to all Semitic thought and was expressed in cuneiform hymns and psalms at an early period. Ideas that later attained full growth and purer form in Judaism and Islam were already current in Babylonia, amid a welter of crude and superstitious beliefs and practices (photo. 91).

The Babylonian priesthoods were responsible for another set of notions, the astrological interpretations of astronomy, which have endured into modern times. But the building up of a system of astrological predictions applicable to individuals was the work of later ages, after the Greek conquest. In Babylonian astrology only great units were concerned—kingdoms, states, and peoples—and astrological prediction arose from calculations based on the genuine observation of heavenly bodies. The reason for astronomical observation was that it was the priests' duty to regulate the calendar, a prime necessity of agriculture in the climate of Mesopotamia.

Towns and Buildings. Mesopotamia, particularly lower Mesopotamia, was a land of numerous towns, many with a large population. This feature, common to Abbasid and modern Iraq, is mainly due to climatic and topographical factors which encourage the settlement of the agricultural population in large units. But towns also developed with a different basis, particularly market towns and bazaar



111. *Ishtar Gate at Babylon, with decorations in baked brick, formerly covered with coloured glaze*



112. *Foundations of Nebuchadnezzar II's palace in the Southern Citadel at Babylon*



113. *Ziggurat steps at Ur*

114. *Palace drain at Eshnunna (Tel Asmar)*

towns at route-centres and ports, 'holy cities' around notable shrines such as Eridu and Nippur (like the Shia holy cities to-day), and political capitals and fortresses like Lagash, Mari, Nineveh, and Carchemish. Babylon, the largest of them all, was at once the holy city of Marduk, a market centre, and an imperial capital (fig. 94).

In Assyria during the empire the headquarters of the army became a great city and was shifted several times, from Ashur to Kalkhi or Calah (Nimrud) and thence to Nineveh and to Dur Shurrukin (Khorsabad), where Sargon built a new and short-lived city. After the fall of Assyria these cities disappeared almost without trace except Ashur, which had been a trading centre before it became a barrack town.

The great towns, of which Babylon is the best known, consisted of a huddle of flat-roofed, mud-brick houses built around the great temples and royal palaces. The temples were of uniform pattern. A great open courtyard, surrounded by offices, stores, and priests' cells, led to the inner shrine containing the statue of the god. Adjoining, sometimes in a separate courtyard, there was usually the stage-tower or *ziggurat*. This was sometimes an immense tower of several stories recessed one above the other, approached by staircases or encircled by an outside passage which mounted from storey to storey. The top storey was crowned by a shrine, and the whole may have represented the abode of the god on a mountain peak. The biblical story of the tower of Babel contains the memory of one of these great ziggurats, the ruins of which survive at several places (photo. 96).

The royal palaces were vast complexes of halls, rooms, offices, stores, and chapels built around one or more central courtyards. Private houses were built likewise around a central yard, into which all doors and windows opened. All these elements were of immense antiquity, being little modified from Sumerian times down to Neo-Babylonian, and were duly handed on through later ages to Abbasid Iraq. There is kinship between the ground-plan of the Sumerian temple and of the Islamic mosque. Even the ziggurat is the parent of the minaret, the well known Malwiya tower of Samarra (ninth century A.D.) being an intermediate form (photo. 120).

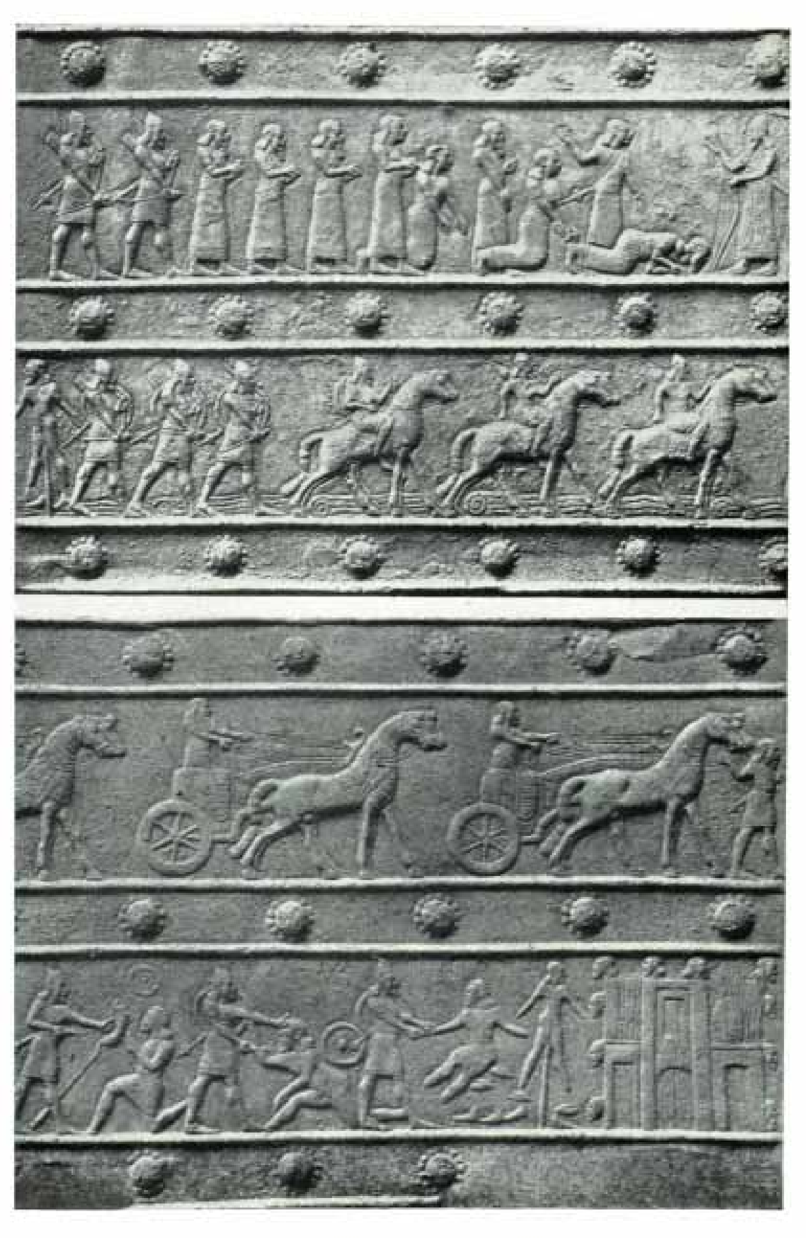
In the general layout of the towns there is a difference. Babylon at least was built on a rectilinear plan of parallel roads crossing at right angles, a scheme of town-planning unknown to Islamic times. The building material was brick because there is no stone in the delta south of Baghdad, whereas there is abundant clay ready for fashioning. The buildings were all very solidly and heavily built; during

the first millennium sun-dried brick was used for the inner courses and kiln-burned for the outer casing. The general effect was of huge cubes, sometimes redeemed from monotonous ugliness by facings of brilliantly glazed bricks which bore representations of strange beasts. In Assyria and Elam more use was made of stone as a facing, but brick was still predominant. The halls of the palaces of Nineveh and Dur Shurrukin (Khorsabad) were adorned with the fine series of relief sculptures in which the Assyrian kings told the story of their conquests; many of these are preserved in the British Museum (photos. 101–104, 106, 107).

The towns of the plains needed walls and towers for defence, though often the real fortress was the palace of the king. It was the Assyrians who developed this style of fortification. Their huge city walls at Ashur, Nineveh, and Khorsabad were imitated by Nebuchadnezzar II at Babylon. These brick towns were easily destroyed by fire and floods, and were frequently rebuilt upon the same site after misadventure in the continual wars and rebellions. This is the origin of the *tels* of the Mesopotamian plain, which are the ruin-mounds of layer upon layer of ancient towns. When the population was dispersed or removed to another site the *tel* would remain abandoned. Thus the very position of Nineveh was almost forgotten within two centuries of its destruction.

Persian Achaemenid Empire, 539–331 B.C.

The Medes after 612 were busy extending their power in Anatolia and Armenia north of the Taurus, where Cyaxares extinguished Urartu and reached the Halys, the eastern boundary of the kingdom of Lydia. The Medes could not overcome Lydia unaided, and in 585 a 'Four-Power Pact' stabilized the division of western Asia between Media, Babylon, Lydia, and Egypt. But in 553 there was a change of dynasty. Cyrus the Persian, whose predecessors had ruled both in Persis and in Elam (p. 219), replaced the son of Cyaxares and united Medes and Persians into a single Power. By 546, having overthrown Lydia, he was ready to deal with Babylon. In 539 the forces of Babylon under Belshazzar were defeated at Opis on the Tigris (p. 45). The city of Babylon surrendered without fighting, but the citadel was besieged and stormed (538). By Cyrus' conquest of Babylon the Semitic empire of Mesopotamia and Syria was united with the former Anatolian kingdoms and with the dominions of the Persian plateau into a world-wide empire, to which Cambyses added



115. *Bronze bands of the Balawat Gates, showing the army of Shalmaneser III and the defeated enemy*



Egypt (525). Mesopotamia ceased to provide the military foundation of this complex. Assyria and Babylonia formed a single province of the Persian Empire, ruled by satraps. But the city of Babylon, through its geographical position, became the administrative capital,



FIG. 52. *Satrapies of the Persian Achaemenid Empire, 559–331, B.C.*

central market, and intellectual focus of the whole empire (fig. 52).

The Persian conquest marks a new epoch. Hitherto Anatolia and Iran had been outside the main stream of civilization. No Mesopotamian king had ruled peoples north-west of Cappadocia; few had even crossed the Taurus. Hitherto the civilization of Babylon had been preponderantly Semitic and Sumerian, with minor contributions from other sources. But now the ruling power was Iranian—Indo-European—and the Iranians had a major contribution to make, mainly in religion and administration. Zoroastrian and Babylonian theology intermingled. The situation was exactly paralleled 1,300 years later when similar Persian influences produced in lower Iraq the great Shia heresy of Islam.

Zoroastrian Religion. The pure Zoroastrian or Mazdaean faith of the Persians was quite unlike anything hitherto known to Mesopotamian man. The Babylonian gods, like those of Greek polytheism, were the personifications of natural forces and human passions; the essential thing was to placate them, and they were local in character. But Zoroastrianism was a universal system of ethical and metaphysical ideas, a religion in the modern sense. It might be summarized as the necessity for the individual man to choose between 'light' and 'darkness'; it is his duty to choose light, to speak truth, and to combat 'the Lie'. There was also a doctrine of judgement

leading to heaven for the good or hell for the bad. Ahura Mazda, the supreme power of light and wisdom, with his six helpers—abstractions such as Good Thought, Orderly Government, Holy Character—was opposed to the Evil Spirit and the Lie, Ahriman, whose assistants were the old gods of the popular faith. Ahura Mazda was manifest in fire, the pure element. Hence 'fire worship' and fire altars were the outward mark of Mazdaeism. All this must have sounded very strange to those brought up in the old polytheism, though the strong ethical appeal was not alien to Semitic thought. But generally Zoroastrian notions spread through the cult of particular pre-Zoroastrian deities of the Iranians such as Anaitis and Mithras. These were identified by the Mazdaeans with the helpers of Ahura Mazda (instead of being classed as demons or Devas), and could be regarded by ordinary polytheists as personified gods. Later Mazdaeism in the hands of the priestly caste of Magi developed a formal and ritualistic system of life, which through its stress on purification contained rules and formulae very different from the original code.

Organization. The second great contribution of the Persians was in imperial organization. Hitherto empires had existed but had only been organized in a rudimentary fashion. It was Darius (522–485) who, adopting Assyrian and Egyptian precedents and inventing a great deal more, first organized a modern form of provincial administration. Civil government—taxation, legal procedure, roads, security—was in the hands of the satrap of each province and his subordinate governors. Military forces raised within the provinces and the general supervision of defence were in the hands of the satraps, but garrisons of Persian troops were commanded by independent generals. Both satrap and general were controlled by travelling inspectors, the 'Eyes and Ears of the King', while the central government was kept in touch with the provinces by a system of dispatch riders and posting-stations along the 'royal roads' of the empire, of which the route from Sardis to Susa is the best known. The establishment of a skeleton road system, later developed by the Seleucids and Romans, was in itself a great achievement, though at this period the roads were not paved.

Warfare. The success of the Medes and Persians was due to the organization of larger armies. The major units, of which the empire could raise six, were army corps of 60,000 men containing six divisions of 10,000 men, subdivided into ten battalions. The strongest arm was the cavalry mounted on the famous Nisean horses

of Media and carrying missile weapons, bow and javelin. These were used to destroy their enemy at a distance, whether the infantry bowmen of the Assyrians or heavily armoured infantry such as the Greek hoplites. When the Persians were forced to fight without cavalry, or when its value was neutralized by the terrain, the Greek hoplites or armoured pikemen were their masters, as at Marathon (490) and Platea (479). When the Greek hoplite was organized in the heavy Macedonian phalanx, and supported by cavalry armed not with missiles but a thrusting spear, the Greeks were able to take the offensive against Persian armies. Hence the Persian Empire lasted till these conditions were established by Philip of Macedon (359–336) and his son Alexander (336–323), who outclassed the Persians in the arts of war and of political organization. The Persian weakness was first discovered by the division of Greek mercenaries—Xenophon's Ten Thousand—who were taken by Cyrus the Younger in 401 to Mesopotamia in his bid for the Persian throne. After the battle of Cunaxa[1] and Cyrus' death they fought their way back through Kurdistan and Armenia to the Black Sea at Trebizond, and entirely frustrated the attempts of the Persians to destroy them. This phalanx system lasted till the Parthians reintroduced missile-armed cavalry in a more dangerous form, and overwhelmed the Roman legions, themselves a development of the phalanx (p. 230). Thence onwards cavalry was the arm of Asia, alike for the Sassanids and, when adapted to new tactics, for the Moslems.

II. THE CLASSICAL PERIOD

Alexander and the Seleucid Empire, 331–*c.* 140 B.C.

As far as the life of the masses was concerned, there were no major changes during the 200 years of the Achaemenid Empire. The clash of Persia with Greece (499–375) left them unaffected until, after the unification of Greece (338) by Philip of Macedon, his son Alexander led his armies into Asia, overthrew the Achaemenids at the battle of Gaugemela near Arbela (Erbil) (fig. 24), and advanced through Persia into India. The establishment of the new empire might have meant only another change of dynasty, but Alexander and his successors had the notion of establishing compact settlements of Greeks in the key points of their dominions. These 'colonies' were self-governing

[1] Identification uncertain; somewhere between Falluja and the head of the Nahr Malik.

cities, each of which reproduced in itself the whole complicated pattern of Hellenic life, and thus propagated throughout the oriental world a civilization which was not only different from anything known before but, unlike Zoroastrianism, affected every branch of human

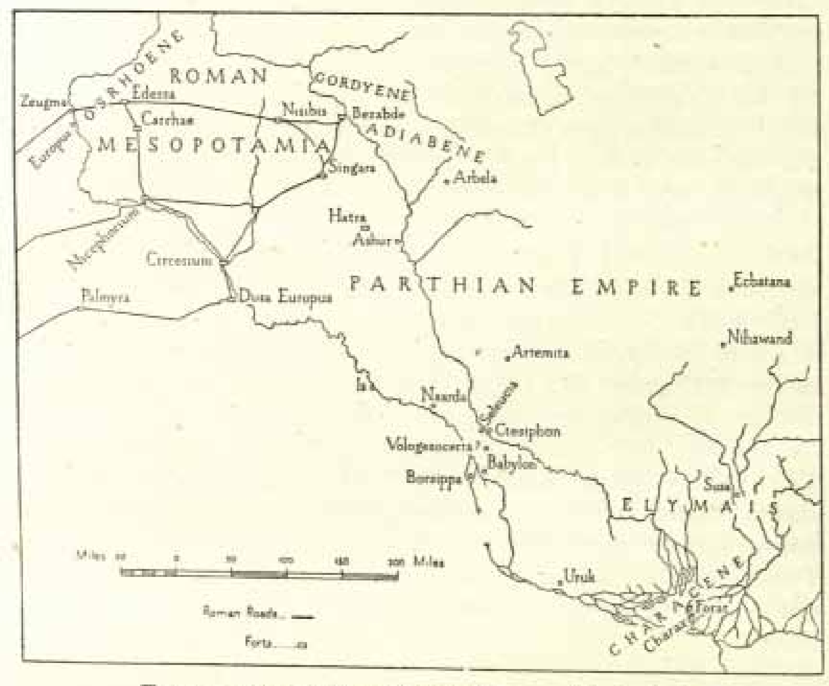


FIG. 53. *Cities of Parthian and Roman Mesopotamia*

activity. The basis of this 'Hellenism' was free intellectual inquiry or 'philosophy'. This meant the reasoned study of history and human behaviour, of the processes of thinking and causation, of the nature of the gods, and of the physical, particularly the mathematical, sciences. There was also a secular and personal attitude towards literature and the arts, which ceased to be the handmaids of religion and mythology. In Mesopotamia this Hellenic culture had a strong rival in the Babylonian, and there grew up a hybrid 'Hellenistic' civilization, partly Greek and partly Babylonian, which spread far beyond the original 'colonies' and altered the life and thought of the whole people. The main instruments of this civilization were the Greek language, which became the lingua franca of the Middle East, and the *Gymnasium*, a form of social club which in each town

maintained the characteristic Greek combination of athletics with intellectual pursuits. This mixed 'Hellenistic' civilization outlived the fall of the kingdom established by Alexander's general Seleucus and his successors in Syria, Mesopotamia, and Iran; under the Parthian Empire (p. 233) Mesopotamia long continued to be a 'Hellenistic' country.

The main figures in the hellenization of Mesopotamia were Seleucus I Nicator (301–280) and Antiochus IV Epiphanes (175–163). Seleucus was the founder of the Seleucid Empire, which included most of the Achaemenid Empire except Egypt, and established several Greek 'colonies' in Mesopotamia, not all of which have been identified (fig. 53). Antiochus encouraged the hellenization of native cities like Babylon and Uruk (Erech), a policy which does not seem to have been resented in Mesopotamia, though it stirred up the Maccabaean revolt in Palestine, where the monotheistic Jews refused to secularize their theocratic state. The greatest of the Greek cities was Seleucia-on-Tigris, downstream of Baghdad, the eastern capital of the Seleucid Empire. Seleucia replaced Babylon as a commercial centre and grew to be a city of 600,000 souls, containing three divisions: the Greek 'citizens' who ruled the municipality as a whole, the 'polity of the Arabs' which included the native population and had a measure of self-government, and the Jewish colony which also managed its own affairs. This complex whole was technically an independent republic, in alliance with the Seleucid monarch, who, however, had his agent or overseer in the city.

The Parthian Empire, 140 B.C.–A.D. 226

In the second century B.C. the Seleucids, who were excluded from Anatolia by the Romans in 189 B.C., began to lose control of their eastern provinces. A new Iranian people, the Parni, had entered the Persian plateau from the steppes east of the Caspian and established a kingdom in the former satrapy of Parthia (*c.* 247–200 B.C.). The dynasty was named Arsacid after its perhaps mythical founder Arsaces, but the distinction between the Parni and the mass of their subjects was soon forgotten, and both were called Parthians (fig. 52).

Under Mithridates I (160–138 B.C.) they wrested the western satrapies of the Iranian plateau from Seleucid control and occupied first Elymais (Susiana) and thence Babylonia and Assyria, now called Adiabene (142–141 B.C.), and in 140 B.C. Mithridates took the old Achaemenid title of King of Kings. At first the Arsacids led an

Iranian reaction to the Greek civilization introduced by the Seleucids, but they found that the hostility of the numerous Greek cities rendered control of their empire precarious. Whenever the Seleucids made a counter-offensive from Syria to win back their lost provinces the Greek cities welcomed them. Hence the Arsacids were forced to compromise with their Greek subjects, the civilization of the cities remained superficially Hellenistic, and the Arsacid kings took the title of Friend of the Greeks.

Parthia and Rome

Meanwhile, west of Mesopotamia, the countries bordering the whole of the Mediterranean had been gradually conquered and organized by the Roman State of Italy into an empire since about 200 B.C. Between Parthian and Roman aggression the Seleucid Empire was reduced to the territory of Syria, and when this became a Roman province in 64 B.C. the Parthian and Roman empires became neighbours with a common frontier. At first they sought to master each other by force of arms. In 53 B.C. the invading army of the Roman Crassus was disastrously routed by the Parthian general Surenas at Carrhae (*mod.* Harran) in the foothills north of the Syrian Jazira. The Parthians invaded Syria and Asia Minor in 51 B.C. and again more effectively in 40 B.C., but they were expelled by the Roman Ventidius Bassus (in 39 B.C.). The Roman emperor Augustus (27 B.C.–A.D. 14) established an uneasy balance of power between the two empires which lasted, despite many alarums, till A.D. 114. The Euphrates was the agreed frontier in its middle course, but there was perpetual dispute and occasional war about the status of Greater Armenia, the area between the upper Euphrates and the Caspian including the former Urartu (p. 218). Armenia had become an independent kingdom for a brief time under Tigranes and an ally of Rome (83–65 B.C.), but its natural and cultural associations were with Parthia and the Iranian peoples.

The Emperor Trajan sought to alter the balance of power by annexing Armenia and Mesopotamia (A.D. 114–117), but his successor Hadrian let the provinces revert to Parthia. The main effect of this and later invasions of Mesopotamia under Verus (164) and Septimius Severus (197) was to weaken the Parthians against a revival of the native Persian power, which eventually swept them away and proved far more formidable to Rome than ever the Parthians had been. By A.D. 200 the Romans gained from all their efforts only the north-western area of the Jazira mostly outside modern Iraq. This Roman



116. *Façade of Palace at Hatra, with the Liwan Hall on the left*

117. *Liwan Hall of Ctesiphon from the east, with the Tigris and western Ctesiphon in the distance*

118. *Roman bridge over the Wadi al Murr, near Eski Mosul*

119. *Roman barrage at Qasr Kubbaz, in the desert west of Hit*

province of Mesopotamia had the Syrian Khabur and Jabal Sinjar as its frontier but reached the Tigris near Pesh Khabur (fig. 53).[1]

The Parthian State

The Parthian Empire was a ramshackle and feudalized edition of its predecessor. Much of the administrative machinery of the Seleucids was retained, but many provinces were turned into vassal kingdoms and even the provinces proper tended to become kingdoms in the hands of hereditary satraps: later ages called the Arsacids the 'kings of the sub-kingdoms'. The land was ruled by a great land-owning nobility of sub-kings and satraps who contributed their levy of retainers to the Parthian army. The Arsacids seem to have been content with a nominal suzerainty and made few demands upon their subjects either for money or for men. Though not true Zoroastrians, they adopted the popular form of the Mazdaean religion and were tolerant of all other sects.

The strength of the Parthians was in military science. Cavalry was their main arm, and consisted of mounted archers, lightly armoured, who specialized in the 'Parthian shot', fired in retreat backward over the crupper, and also of heavily armoured 'cataphracts' clad in mail who carried a spear of huge size. The aristocracy provided the cataphracts and trained their retainers—not their slaves—as mounted bowmen. The Parthian army was small, as in most feudal states, never more than 6,000 cataphracts and 34,000 bowmen, but mobile and hard to destroy. Hence came the unaggressive character of the Parthian Empire and its long life. But the alien nature of the army provided no bond with the peasant peoples of Mesopotamia, who had been mainly infantrymen since the disappearance of the chariot. The horses came from Media, where the Parthians bred a huge strain of the 'Nisean' steed, resembling the vast Flemish war horses of medieval times. Strabo says that they had a 'shape of their own' and the common people compared them to elephants.

Parthian Mesopotamia (fig. 53)

Alike in political and military organization, social customs, and religious beliefs, the peoples of Mesopotamia were very much left to themselves by the Arsacids, and native characteristics developed apace. The general civilization of Parthian Mesopotamia was a mixture of Semitic, Greek, and Iranian elements, best known from

[1] See *Geographical Handbook of Syria*, B.R. 513, p. 116.

the ruins of Dura-Europus (*mod.* Salahiyeh), a town of mixed population on the right bank of the Euphrates, which acted as the out-port of the caravan city of Palmyra.[1]

The old Semitic civilization reasserted itself and competed on even terms with the Hellenistic, because the now universal medium of Aramaic language and script freed it from the fetters of cuneiform and eventually enabled a popular Aramaic literature to be created. The Babylonian cults of Bel Marduk, Ishtar, and Adad were strong throughout the land and practised with the full ancient ceremonial at Babylon and Uruk. Babylonian thought, particularly astrology, radiated with these gods from Mesopotamia into the Roman Empire. There was also another and more recent Semitic force at work in Mesopotamia: Judaism. The Jews of Mesopotamia had been numerous since the Captivities and were steadily increasing in numbers by successful proselytism. Fresh drafts arrived from Judaea after the unsuccessful Jewish rebellions of A.D. 66–70 and 132–135. It was largely Jewish opposition which made Mesopotamia so uncomfortable a field of operation for the Roman emperors. This Jewish community, which was mainly urban, prepared the ground for the rapid spread of Christianity, but was itself a potent rival of other religions.

The Iranian element in Parthian Mesopotamia was considerable and destined to increase in the next period. Its chief centre was the new capital of Ctesiphon, opposite Seleucia on the Tigris, and its main contribution was in the arts of architecture, relief-sculpture, and painting, and in the religion of Mithras. This off-shoot of Mazdaeism inculcated the soldierly virtues and also a belief in spiritual regeneration through a series of initiatory processes. The architects of the Parthian period built great domed and arched halls known mainly from the ruins of Hatra and Ashur, which anticipated the 'Liwan' palaces of the Sassanids (photo. 116). In graphic art—painting and sculpture—a formal frontal treatment of portraiture was introduced, very different from the profiles of the Assyrian bas-reliefs, and an exaggeration of the length of human limbs and a linear treatment of the body, tendencies which helped to form the style of Byzantine painting. But, at most, the Parthian period was a compromise between the European civilization of the Seleucids which preceded and the oriental influences of the Sassanid Persians who followed them.

Politically Parthian Mesopotamia was a strange medley. In the

[1] See *Geographical Handbook of Syria*, B.R. 513, p. 114.

northern Jazira and the adjacent foothills, principalities of 'Arabs', as the Greeks called the pastoral Arameans, were developing around Nisibis, Edessa, and Hatra. In the extreme south Mesene, the former delta country of the Sea Land, now greatly extended into the gulf, became the sub-kingdom of Charax Spasinu or Characene. Charax, at the mouth of the Tigris, became the main port of Mesopotamia and a cosmopolitan centre, where Greek and Semitic elements predominated.

Elymais (Elam) likewise became a sub-kingdom under the Iranian dynasty of Kamnoskires; its way of life was mixed Greek and Iranian. The Greeks predominated in the city of Susa, renamed Seleucia-on-Eulaeus, but the Iranian hill-folk were the main strength of the kingdom, and the cult of the Semitic goddess Nana was widespread. *Adiabene* (Assyria) was another sub-kingdom, and within it, at Ashur, a small community of temple priests carried on the ancestral worship of their god Ashur, using Aramaic and untouched by either Greece or Iran; in the third century A.D. one of them was called Esarhaddon. The kings of Adiabene were at one time converted to Judaism. *Gordyene*, a district of small principalities, corresponds to modern Iraqi Kurdistan, and commemorates the consolidation of the Kurdish peoples (Gordi, Carduchi) in their present localities.

At the nodal point of Mesopotamia the great Greek city of Seleucia, the focus of Greek civilization, maintained its constitution, though the Parthians built themselves a barrack town and winter capital on the opposite bank of the Tigris at Ctesiphon and later sought to weaken Seleucia by transfer of population. Another Parthian city, Vologesocerta, was also founded near by to draw away some of Seleucia's trade. The Greek and semi-Greek cities retained sufficient life to maintain schools of philosophy and produce men of letters during the first two centuries of the Parthian era, including two geographers from Charax and an historian from Artemita. The Greek way of life was gradually undermined by Semitic and other influences, but it was a sudden blow, the sack of Seleucia by the Roman general Avidius Cassus in the campaign of A.D. 164, that fatally weakened the Greek tradition in Mesopotamia.

Commerce and Trade Routes

The unifying factor amid this welter of political and cultural diversity was trade. Commerce had ceased to be parochial ever since the Achaemenid Empire had established a universal currency and the protection of the trade routes. Through Mesopotamia

passed the arteries by which much of the commerce of India and the Far East reached the Mediterranean world, while the agricultural wealth of the country and its central position within the empire made it a considerable consumer of luxury goods. The Parthian Empire really consisted of the provinces from the Euphrates to Merv (Margiana) and Herat (Aria) through which passed the great overland trade route of the Iranian plateau, bringing goods from India and China (fig. 52). This route descended from Media to Babylonia by the Zagrian Gates (Tak-i-Gireh, p. 571) and the Diyala valley. Another stream of trade arrived from southern Arabia, India, and east Africa by the Persian Gulf through the Tigris port of Charax (fig. 53). From the central markets of Mesopotamia this trade passed northward through the Assyrian plains and thence westward by the northern Jazira to Syria, crossing the Euphrates at the northern Europus (Carchemish) or at Zeugma. A second route led directly across the Syrian desert from Dura-Europus by the oasis of Palmyra to Damascus; this latter route had not been extensively used before the Parthian period, in which the wealth of Palmyra and Dura originated. Another route was up the Tigris to Tigranocerta, the southern capital of the Armenian kingdom.

In this general trade, of which the most valuable object was the silk of China, cities of diverse types and origin had their share either as ports and stations of entry and exit—Artemita, Charax, Dura-Europus, Zeugma—or as depots and central markets—Seleucia, Ctesiphon, and Arbela—or as police-posts and caravansarais, notably the fortresses of Hatra, Nisibis, and Edessa, while the desert Arabs who protected the caravan convoys took their percentage. The Arsacids realized the dependence of their revenues upon this international trade and protected it accordingly. It was policy with them to maintain the carrying trade in the hands of their subjects and to prevent the Iranian portion of these trade routes from being worked by foreign caravans from either the Roman or the Chinese empires. Likewise they always maintained control of the provinces through which the trade routes ran, and were less interested in maintaining their power in regions such as Persis which were remote from the Silk Way.

The Sassanid Persian Empire, A.D. 224–640

In A.D. 208 Ardashir, king of Persis, and head of the feudal house of Sassan, rose in revolt against his Parthian suzerain Artabanus V,

whom he defeated and killed in 224 at the battle of Hormizdeghan. In a few years Ardashir was master of the whole Parthian Empire from the Euphrates to the Hindu Kush, which his dynasty, the Sassanids, ruled for four centuries until the rise of Islam. The Sassanids were far more effective rulers than the Parthians because they gave the empire the centralized organization and bureaucracy which it had lacked. Hence the Sassanids could make proper use of their resources and were a far more aggressive power than the Parthians had been. Mesopotamia in the Sassanid period remained the richest province of the empire, the seat of its capital Ctesiphon, and its main battlefield. In economic life the Sassanids were great patrons of agriculture, and Mesopotamia, somewhat derelict after Parthian feudalism, benefited from a more effective central government which cared for the canals. The tempo of its life was quickened by Sassanid imperialism and by violent religious movements. These two tendencies were linked together. The Sassanids, posing as the true successors of the Achaemenids, claimed from Rome the western provinces of Syria and Anatolia once held by Darius, and established the ascendancy of the Zoroastrian religion. This became the State Church, with a priestly organization of its own, just as within this period the organized Christian Church was becoming the official religion of the Roman or Byzantine Empire. But the Sassanids were generally tolerant of other religions (p. 238), which were free to practise, proselytize, and organize themselves throughout the empire. Persecution was generally political in origin, and often prompted by the intolerance of the Christian emperors of Constantinople (Byzantium). In the intensely religious atmosphere of the age it was difficult to distinguish between men's religious and political beliefs.

The Persians based their rule on a solid political and religious organization which provided a model for the future empires of Asia down to the Ottoman Turks. The State had its Chief Minister, its Minister of Finance who was also Chief of the Farmers, its Commander-in-Chief, its Secretariat under a Chief of Secretaries, its Minister of Education, and its Treasurers. The Parthian 'sub-kings' were replaced by provincial governors proper, with subordinate officials. The whole system was based on a complicated gradation and stratification of society into clergy, warriors, bureaucrats, and the commoners, who consisted of the peasants and artisans. The organization of the clergy (p. 237) showed a similar tendency towards gradation.

Wars with Romans and Byzantines

Sapor I, the most aggressive of the early Sassanids, was checked in the west by the Arab merchant-prince of Palmyra, Odenathus, who in a time of Roman weakness built up a strong principality in the Syrian steppes and drove Sapor out of Syria (262, 267). The Persian Empire thus was unable to break westwards out of Mesopotamia at this time, and warfare tended to be limited to the northern Jazira, where the strong Roman fortifications and castles, based on Edessa, Nisibis, Singara, and Circesium,[1] imposed a warfare of siege and position in which the rest of Mesopotamia suffered little. Occasionally the Romans took the offensive and endeavoured to imitate the campaigns of Trajan by overrunning all Mesopotamia and capturing Ctesiphon. None of these attempts achieved permanent success. The most famous was that of the Emperor Julian in A.D. 363. To overcome difficulties of supply his army took the road along the Euphrates, accompanied by a large fleet of river-craft which used the Nahr Malik to reach the Tigris below Ctesiphon. Even so, the expedition could not maintain itself and retired northward by the Tigris to Roman Mesopotamia. Julian was killed *en route*, and his successor Jovian, harried by light Arab forces, was compelled to surrender the eastern part of the Roman Jazira, including the great fortresses of Nisibis and Singara. This opened to the Persians direct routes into Armenia up the Tigris valley, and henceforth the wars of the Byzantine (Roman) Empire and Persia were often fought out in Armenia. There the rival churches of the two empires were struggling for predominance, and the control of the Caucasian tribes was a major issue. The wars had no final issue and agreement about frontiers was gradually established, so that in the fifth century the two empires were on peaceful terms for a long period of over eighty years.

In the sixth century border warfare was resumed in Mesopotamia, and a powerful Persian king, Chosroes I (A.D. 531–579), revived the claims of Ardashir and Sapor I to Byzantine Syria. This new aggression was accompanied by religious intolerance and the enforcement of orthodoxy in both empires. It culminated in the great offensive of Chosroes II, who (between 603 and 619) captured the Byzantine fortresses of the western Jazira, crossed the Euphrates, took all the Byzantine provinces from the Taurus to Egypt, invaded Asia Minor, and threatened Constantinople itself. Militarily these rapid and

[1] Modern Urfa, Nusaybin or Nisibin, Sinjar and Meyadin respectively.

startling successes were made possible because the Persian armies had broken through the fortress ring and could exploit their mobility. They anticipate and partly explain the equally rapid expansion of Moslem power twenty years later. The Christian world, shocked by the sack of Jerusalem and the loss of the Holy Cross in 614, gathered its strength. The Emperor Heraclius between 622 and 626 drove the Persians out of Asia Minor and Armenia. In 627 he invaded Mesopotamia from the region of Urmia, crossing the Zagros into Assyria. Though unable to take Ctesiphon he made a successful withdrawal across the Zagros back into Armenia in the midst of winter. A peace of exhaustion ensued between Byzantium and Persia, and within ten years both Byzantine Syria and Persian Mesopotamia had fallen to a new and totally unexpected enemy, the Moslems from north-western Arabia.

Arab Tribesmen

In this period the Arab principalities of the Jazira and the desert west of the Euphrates played a part which foreshadowed the development of the Moslem empire. These Arabs were descendants of the Aramean tribesmen of the Assyrian period, but included an infiltration of tribesmen from southern Arabia akin to the later Moslems. By the sixth century both Arameans and Arabs proper had mostly adopted either Christianity or Judaism as their religion. Earlier Palmyra was the most notable of these small kingdoms. Others were Osrhoene with its capital at Edessa, and in the Parthian period Hatra, a fortress in the Jazira south of Singara, of which there still remain notable ruins. In the Sassanid period the control of the desert south of the Jazira fortresses was in the hands of the Lakhmid shaikhs of Hira (in the desert not far from Najaf, fig. 14, V), who were subject-allies of the Persians. The Byzantines likewise were confederate with the Ghassanid chiefs of Transjordan (Arabia Petraea).[1] These two dynasties were continually warring together, nominally on behalf of their suzerains, during the fourth and fifth centuries A.D. But about A.D. 600 their power had been divided among a number of sub-kings with greatly diminished or disunited forces at their command.

Religion

The clergy of the Mazdaean Church were divided, under their supreme head, the Mobadhan Mobadh, into the high dignitaries

[1] See *Geographical Handbook of Palestine and Transjordan*, B.R. 514, pp. 446–7.

called the Mobadh, the mass of the inferior magi (Mogh), and the temple-priests of the fire-temples (Ehrbadh), under the chief temple-priest (Ehrbadhan Ehrbadh). Each place had its local fire-temple, a square domed building with a darkened shrine in which the sacred fire was kept, and there were great central sanctuaries, like cathedrals, in the holy places of the empire. With this organization the Mazdaean religion must have been able to reach every corner of the provinces. The dominant form of Mazdaeism was that known as Zervanism, which regarded 'time' as the 'primal god' from whose bosom Ahriman and Ahura Mazda were born. Zervanism contemplated 9,000 years of rule for Ahriman, the principle of Darkness, whose ally was Woman, and compromised with paganism by admitting Mithras (Sun), Adhur (Fire), and a personification of 'Mazdaean Faith' to form with Ahura Mazda a Tetrad of creative powers.

Manichaeism. The impact of Zervanism on the Graeco-Semitic civilization of Mesopotamia produced strange forms of belief, including Manichaeism, a Christian heresy which for long influenced Christianity and later Islam. Mani first preached at Ctesiphon in A.D. 242 under the patronage of Sapor I. About thirty years later the orthodox Vahram I put him to death. His doctrine was a fusion of Christian and Zoroastrian beliefs and derived in part from the teaching of Bardaisan, an Aramean-speaking philosopher who lived at Edessa about A.D. 180. The central notion in Manichaeism is that the Dark invaded and mixed with the Light, thus producing evil, out of which was created this world, which he called the Smudge. 'Salvation' consisted in restoring Light and Dark to their proper places. Mani took the human element out of religion and was concerned far more with things than with human beings. His true followers, the Elect, lived a life very much more like that of a Buddhist monk than that of a Christian ascetic.

Christianity spread rapidly in Mesopotamia during the third century, mainly from Edessa. Popular tradition brought Thaddeus, an emissary of the apostle Thomas, to Edessa in the first century A.D., but it would seem that Christianity was established at Edessa about A.D. 165 by one Tatian, who prepared the Diatessaron, a version of the Four Gospels in Syriac, which was the Edessan dialect of Aramaic. Edessa thus became the home of a Christian Church which used a language other than Greek, and in time produced a Christian literature of its own and a Syriac Bible. From Edessa the faith spread into Adiabene (Assyria), where Arbela was a bishopric,

and into Babylonia, where Ctesiphon became in 410 the seat of the archbishop (*catholicos*) of the Syriac Church in the Persian Empire. 'Nestorian' professors of the theological school at Byzantine Edessa, followers of the theologian Nestorius (*c.* 430), migrated to Sassanid Nisibis. There a powerful bishop, Barsumas, persuaded the Sassanids that Nestorian Christians were more trustworthy than their rival 'monophysites' or Jacobites (the main church of Syria) who tended to side with the Byzantines in time of war. Hence the Church in the Persian Empire became predominantly Nestorian. These Christians reintroduced a great part of the Byzantine inheritance of Hellenism into Mesopotamia, and it was through the Nestorian monasteries and seminaries that the knowledge of Greek philosophy and science reached the Moslem Arabs of Iraq.

III. THE ARAB CALIPHATES, A.D. 636–1258

The Moslem Conquest

THE rise of Islam and of the Moslem power in Arabia and the conquest of Syria have been described in detail in other handbooks.[1] The peoples of southern Arabia had long been pressing northward in isolated movements and raids, but were never a serious danger to the Byzantines or Sassanids until Mohammed and his successors gave them union and leadership, based on religious inspiration and a certain sense of nationality. Their rapid success, where so many other barbarian invasions had failed, was partly due to the mutual exhaustion of the two great empires and partly to the novelty of Arab methods of warfare. Against the small professional armies and the fortress system they set the tribal levy and the razzia. Their extreme mobility and indifference to the importance of fixed positions baffled all the military science of the civilized Powers. Politically they brought lighter taxation, because their standards of living were low, and religious liberty, because they were indifferent to the rival claims of Monophysites and Nestorians, Zoroastrians and Manichaeans, and did not force conversion to Islam upon non-Arab peoples (p. 246). Hence the subject peoples, both peasants and townsmen, generally welcomed the change of yokes, while the Christian nomads of mixed Aramean and Arabian stock in Mesopotamia and the Syrian steppes felt kinship with the new tribesmen.

[1] See *Syria*, B.R. 513, pp. 124 ff.; *Palestine and Transjordan*, B.R. 514, pp. 99, 448; also *Arabia*, B.R. 527.

Mohammed had died in 632,[1] and the first Moslem raids into Syria and Mesopotamia were in 634. By 636 all Syria was in Moslem hands, and Hira, the southern key to Mesopotamia, had capitulated (p. 237). In 637 the Moslems attacked in force from Arabia, crushed the Persian general Rustam at Qadisiya, and captured Ctesiphon. The Emperor Yazdagird fled into Persia, where in 641 the last Sassanid army was destroyed at Nihawand. The same year the Moslems overran northern Mesopotamia (Adiabene). Eastwards they pressed into Khuzistan (Elymais), and by 650 took Persepolis and occupied the Persian provinces as far as the Oxus. With the death of Yazdagird in 651 or 652 the Persian monarchy came to an end.

Iraq or Sawad (the black land), as the Arabs called Babylonia, became one province of an Arab empire governed, at first from Medina, by the recognized successor of Mohammed, the Caliph, to whom the political power of the Prophet descended. But soon there was a quarrel over this office, to which the Arabs of Iraq and those of Syria put forward different claimants. From this schism there grew up two rival schools or sects of Islam, the Sunni and the Shia, and this division has been a main feature in the life of Iraq down to the present day. In 656 the third Caliph was murdered in Medina by the Egyptian Arab supporters of Ali, who was first cousin of the Prophet, husband of his daughter, and father of his only two surviving male descendants. Ali was proclaimed Caliph and at the 'Battle of the Camel' outside Basra rid himself of two rivals, but a third soon appeared, Muawiya the Governor of Syria. In 657, on the battlefield of Siffin near Rakka on the Euphrates, appeal was made to arbitration, which went against Ali. He held out, but in 661 he was murdered by one of his former supporters, the Kharijites or 'seceders', who had withdrawn from his cause because they disapproved of his submission of the question of the Caliphate to human arbitration. Ali's eldest son, Hasan, though proclaimed Caliph by the Moslems of Iraq, abdicated in favour of Muawiya.

The Omayyad Caliphate, 661–750

Muawiya, proclaimed Caliph at Jerusalem in 661, turned the Caliphate into an hereditary dynasty by nominating his son Yazid as his successor. Yazid's succession in 680 was challenged by Ali's second son Husain, who relied on the support of Arabs from Kufa. But they were unable to maintain him and he was killed with his followers at the battle of Karbala. Ali and Husain became the martyrs

[1] All dates are by the Christian reckoning.

of the Shia sect, and their tombs at Najaf and Karbala became the centres of the Shia faith (p. 328).

Numerous Moslem tribesmen settled and multiplied in Iraq, where the great Arab centres were Basra and Kufa. These originated at the

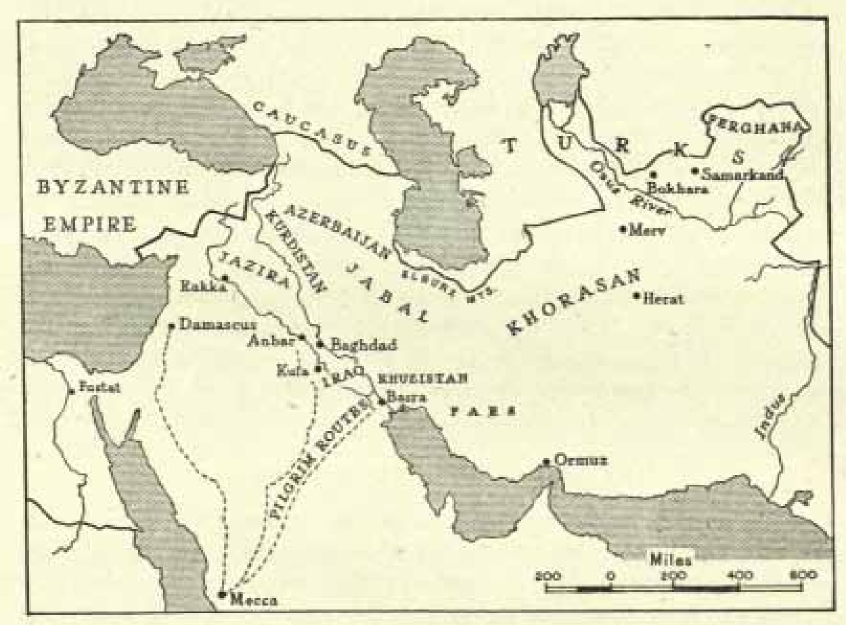


FIG. 54. *The eastern provinces of the Omayyad and Abbasid Caliphates*

time of the conquest as military camps in which the Moslem Arabs were supposed to be segregated aloof from the mass of the population, owning no land and supported by the tribute of their subjects. The detailed administration of the empire was carried out in Byzantine or Persian forms and was left in the hands of Byzantine or Persian minor officials. This segregation gradually broke down. The main changes took place in the Caliphate of Abd al Malik (685–705), who made Arabic the language of public business instead of Pahlavi or Greek and created an Arabic coinage. Hajjaj, his viceroy in Iraq, took the notable step of abolishing the exemption from land-tax (*kharaj*) hitherto enjoyed by converts to Islam among the subject peoples. This, however, caused a rift between the converts and the true Arab Moslems. Converts were regarded as clients, *Mawali*, and in desire for equality tended to support unorthodox sects.

The immigrant Arab population increased until Kufa and Basra

became great cities with populations numbering 200,000–300,000, and a third new Moslem city was founded by the Omayyad viceroy Hajjaj at Wasit to watch over the other two, Kufa being strongly pro-Alid. Hajjaj also kept the Shia sectaries in control by the sword. On his first arrival (694) he declared from the pulpit of the mosque of Kufa: 'O people of Kufa; I see heads ripe for cutting and verily I am the man to do it. I see blood between the turbans and the beards.' This strict control was all the more necessary because the Persian provinces were administered from Iraq rather than from Syria. This displacement increased when the Moslems penetrated, during the regency of Hajjaj, into the regions between the Oxus and Jaxartes, Bokhara, Samarkand, Khiva (Khwarizm), and Ferghana (705–713).

The Omayyad Caliphate also saw the great expansion of Moslem power in north Africa, Spain, and along the northern shores of the western Mediterranean (670–730), which were ruled by Caliphal governors as long as the Omayyad dynasty lasted.

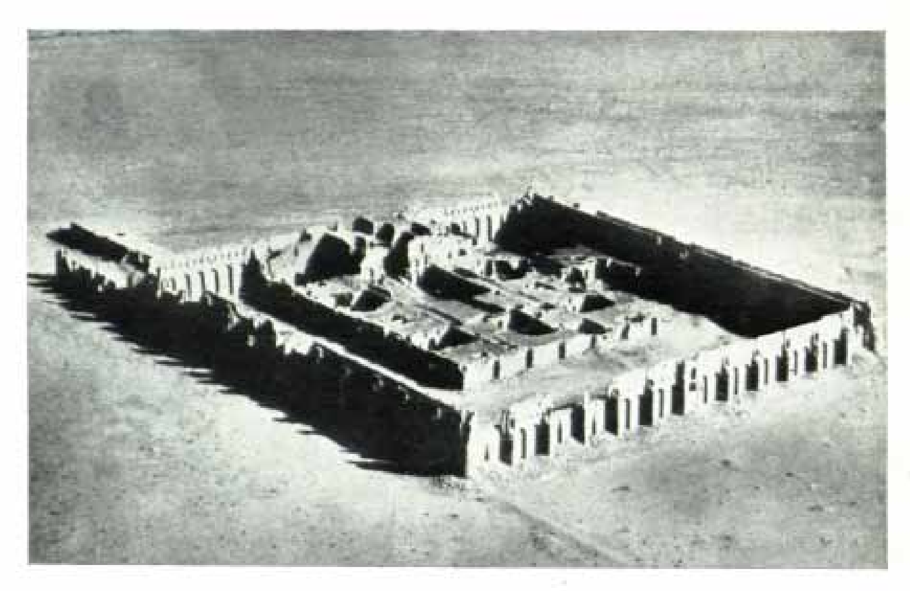
The Abbasid Caliphate, A.D. 750–1258

The extension of the empire eastwards, coupled with the growth of the numbers of the non-Arab Moslems, who because of their grievances were ready to overthrow the existing government, led to the substitution of Iraq for Syria as the centre of the Caliphate, and the replacement of the Omayyad family by the Abbasids. These descendants of an uncle of the Prophet gained Shia support by representing that the Abbasid family was closely allied to that of Ali. But the main forces which effected the change came from Khorasan, the north-eastern province of Persia. Here in 747 Abu Muslim, agent of Abu al Abbas, rallying both Arabs and Persians, raised the black banner of Mohammed as the Abbasid emblem. In 749 Abu al Abbas was proclaimed Caliph at Kufa with Shia support, and at the battle of the Great Zab, Marwan II, the last Omayyad Caliph, was overthrown (750). The whole family was exterminated, except for one Abd ar Rahman, who fled to Spain and there founded a dynasty.

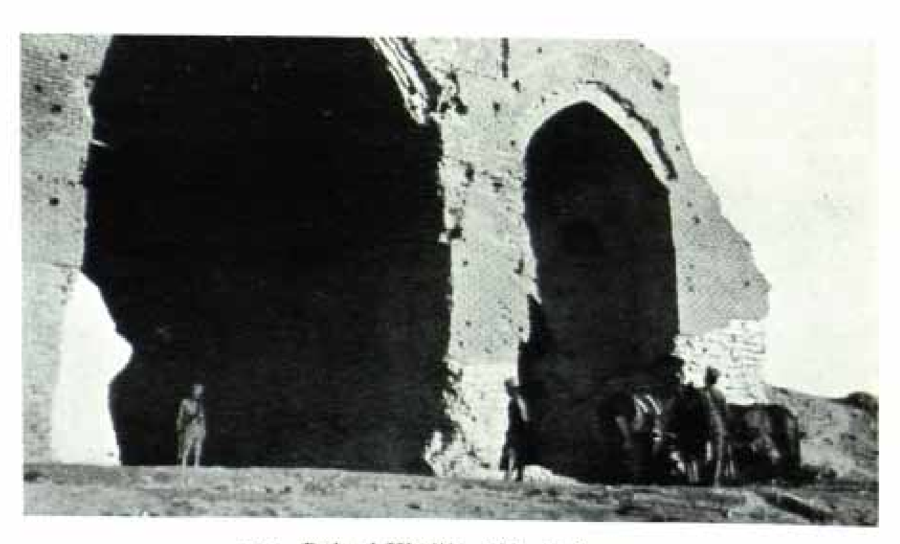
The Abbasid dynasty was properly established by Jafar al Mansur (754–775), the brother and successor of Abbas, and its greatest period, as is common in Moslem history, was its first century of life. Mansur reorganized the imperial administration on Sassanid lines and extended the privileges of the Arabs to all Moslems of the empire. Abbas had selected Anbar, on the Euphrates and the route to Syria,

120. *The Malwiya Tower, Samarra*

121. *Ruins of Abbasid Samarra*



122. *The fortified palace of Ukhaidhir in the Western Desert*



123. *Bait al Khalifa, Abbasid Samarra*

as the centre of the Caliphate (p. 30), but Mansur built a capital at Baghdad, choosing this site 'because', he said, 'it is excellent as a military camp. Besides, here is Tigris to put us in touch with lands as far as China and bring us all that the seas yield as well as the food of Mesopotamia, Armenia, and their environs. Then there is Euphrates to carry us all that Syria, Rakka, and adjacent lands have to offer.' Mansur's city of Baghdad, which he called Dar as Salam, the 'abode of peace', became at once the centre of a remarkable blossoming of civilization which lasted until the Mongol invasions in the thirteenth century. Politically the glory of the Abbasids did not last long, but throughout the long Abbasid decline southern Iraq was the centre of a uniform and progressive civilization which was even more remarkable than that of the ancient world. The basis of wealth was world-wide trade and local agriculture. Great attention was paid to the drainage and irrigation works of Iraq, which now reached their maximum extension (p. 433). This was all the more necessary because by this period the closing of the three deltas had formed the Great Swamp on the lower Euphrates below Kufa. Iraq, becoming again the central province of a great Asiatic empire, was freed from the border warfare and brigandage which had been constant since the breakdown of the Seleucid Empire, and enjoyed agricultural prosperity like that of Babylonian times.

Though the Abbasids retained some form of authority in Iraq down to 1258, they controlled the eastern Moslem empire only for about a century, and the reign of Harun ar Rashid (786–809) is traditionally regarded as the crown of their glory. Since the reign of Mansur the Iranian Barmakids had become the most influential officers in the Empire, and under Harun they dominated the state until their overthrow in 803. Their office, later known as the vizirate, continued to exist. Being held with unrestricted power, it interposed between the people and the Caliph. Thus the originally republican and accessible Caliphate finally became an absolute monarchy, remote and inaccessible, like that of the Achaemenids and Sassanids, while the actual exercise of power tended to be in hands other than those of the Caliph.

The north African and Spanish provinces soon became independent kingdoms and even established rival Caliphates. Egypt remained an Abbasid province till 868, but a century later, as the seat of the Shia Fatimid Caliphate, became a serious rival of the Abbasid in wealth and power, and secured control of Syria and Palestine (1001). In the east the Iranian provinces, beginning with Khorasan in 822, fell

into the hands of dynasties which professed a barely nominal loyalty to the Caliphs of Baghdad, such as the Samanids, rulers of Transoxiana and Khorasan (874–999), and the Ghaznawids of Afghanistan (962–1186) who also conquered the Punjab. The Caliphs began to

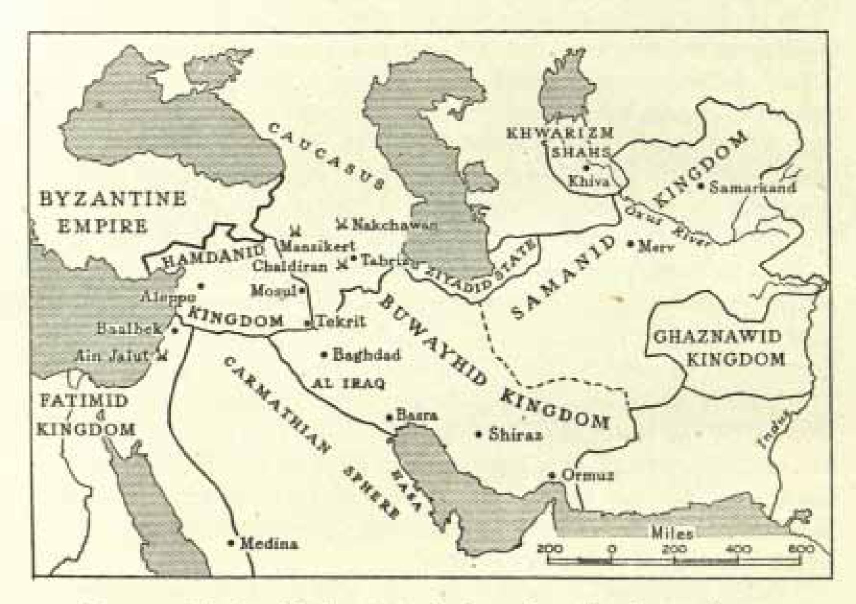


FIG. 55. *Eastern Moslem states in the 10th and 11th centuries A.D.*

lose control even of Iraq in the time of Mutasim (833–842), who instituted a bodyguard of Turkish troops recruited in Transoxiana to counterbalance the influence of the Khorasan levies, the original supporters of the Abbasids. But the Turks in turn proved too strong and unruly. In 836, to placate the infuriated Baghdadis, Mutasim removed the seat of government and the Turks 70 miles upstream from Baghdad to Samarra, where he was a prisoner of his own bodyguard. After the murder of his successor Mutawakkil in 861 by the guard, power passed increasingly into the hands of Turkish generals.

Southern Iraq was troubled at this time by the destructive Zanj rebellion (869–883). The Zanj were negro slaves employed in the land-reclamation of the delta, and they rose under a Shia pretender. Their strong position among the marshes and canals made them hard to subdue, and much damage was done to the towns and agriculture of the region from Basra to Wasit.

The return of the Caliphate to Baghdad in 892 did not restore its

power, and Muqtadir (908–932) gave official power to the commander of the bodyguard with the title of Amir al Umara (commander of commanders). In 945 a new dynastic ruler of western Persia, Ahmad ibn Buwayh, invaded Iraq with a horde of 'Dilemite' tribesmen from the mountains of Elburz, and was made Amir al Umara, with additional titles of honour. For a century the Buwayhids governed Iraq from their capital of Shiraz in Persia, and greatly encouraged the extension of the Shia faith and the establishment of its festivals. Adud ad Dawlah, the greatest of them (949–983), reunited the eastern provinces ruled by Harun ar Rashid. He built the shrine of Ali at Najaf and a famous hospital at Baghdad, while his son's Persian vizir, Sabur ibn Ardashir, built a great library of 10,000 books.

Seljuk and Khwarizm Turks, A.D. *1055–1220*

This Shia predominance was overthrown by the advent of the Seljuk Turks, who were strict Sunnis. This nomad people from the Khirgiz steppes of Turkistan wrested Transoxiana and the Persian provinces from the Ghaznawids and Buwayhids, and were welcomed at Baghdad in 1055 by the Caliph Al Qaim. Their chief, Tughril Beg, and his successors ruled the empire as As Sultan, 'he with authority'. Alp Arslan (1063–1072) succeeded by his victory over the Byzantines at Manzikert in Armenia, where all the Mesopotamian empires except the Achaemenid had failed, in achieving the permanent conquest of Asia Minor. Under Malik Shah (1072–1092) most of the lands held by Darius I were again ruled by a monarch resident in Iraq.

The Seljuks maintained the existing forms of administration, and their great vizir, the Persian Abu Ali ibn Ishak, called Nizam al Mulk or 'the organizer of the kingdom', was an expert on political government, about which he wrote a treatise. He established a system of hereditary military fiefs which, like those of Parthia, tended to become independent dynasties and so weaken the empire. The history of the local dynasty of Mosul, which was one of these fiefs, illustrates the geographical separation of northern and southern Iraq. Earlier, in the tenth century, the Hamdanids of Mosul, whose power reached through the Jazira, had succeeded in conquering northern Syria including Aleppo and Homs, where from 944 to 1003 they defended the Islamic world from the last onslaughts of the Byzantine Empire. Now in the twelfth century another Mosul dynasty played a similar part in Syrian history against the Crusaders. The decline of Seljuk

power was such that when the Crusaders had established themselves in western Syria and at Urfa on the northern fringe of the Jazira (1097–1100) neither the Sultan nor the Caliph at Baghdad gave any serious help. It was left to the local dynasts or Atabegs of Mosul, Zangi (1127–1146), Nur ad Din (1146–1174), and later to their lieutenant and successor the Kurd Salah ad Din (Saladin, 1169–1183), to organize Moslem resistance. Saladin, an enthusiastic Sunni, put an end to the Fatimid Caliphate in Egypt and built up an empire which included Egypt, Syria, and the Tigris valley in northern Iraq.

The Abbasid Caliphate gained a final flicker of reflected glory from Saladin, and the effective Seljuk kingdom was limited to southern Iraq, Kurdistan, and Azerbaijan in Persia, when the Caliph Nasir (1180–1225) foolishly invited in the Turkish dynasty ruling in Khiva, the Khwarizm Shahs, against the Seljuks. The Seljuks were destroyed by Shah Takash in 1194, who took the title of Sultan and tried to deprive the Caliph of his remaining secular powers in Baghdad itself. The son of Takash was planning to substitute a Shia Caliphate for the Abbasid when, about 1220, possibly again on the invitation of Nasir, the Mongolian hordes of Jenghiz Khan, a heathen people, entered the empire sixty thousand strong, killing and destroying. The Mongol invasions put an end to the epoch of continuous Moslem development. The great Moslem cities of Transoxiana and eastern Persia were destroyed by Jenghiz, and in January 1258 his grandson Hulagu Khan appeared before Baghdad. The city was plundered and burned, though not completely destroyed. The Caliphate and the Abbasid family were extinguished, except for one Mustansir who fled to Cairo. There down to 1517 a shadow-caliphate was maintained by the Egyptian Mamluk dynasty, which had stopped the Mongolian advance on Syria at the battle of Ain Jalut (1260).

Non-Moslems under the Caliphate

It was only in Arabia, if at all, that the Moslems offered the conquered the choice between the Koran and the sword. Mohammed had bidden the Faithful to 'make war upon those to whom the Book (i.e. the Bible) has been given until they pay tribute . . . with humiliation', and the bulk of the inhabitants of Syria and Iraq, the countries first conquered, were Peoples of the Book, Jews, Christians, and Sabians. Later the term was extended out of expediency to cover others such as the Zoroastrians of Persia. Hence the establishment of the Moslem Empire in Asia did not mean that the peoples of these

regions were immediately and forcibly converted to Islam, which by its primitive simplicity and freedom from theological and ecclesiastical complexity attracted plenty of volunteers.

It was during the Abbasid Caliphate that the majority of the inhabitants of the empire became Moslems, sometimes forcibly, but more often under the social and economic pressure of legislation directed against non-Moslem subjects (*Dhimmis*) which regulated their dress, excluded them from the service of the State, and disallowed the testimony of Dhimmis against Moslems. But a man was generally free to retain his faith with the status of a Dhimmi. Also the restrictive laws, which originated in the time of the Omayyad Caliph Omar II, were seldom put fully into effect. Thus in Iraq large communities maintained their separate faiths throughout the Abbasid period, particularly Jews and Christians.

The *Christians* of Iraq were Nestorians and Jacobites. The patriarch or *catholicos* of the Nestorians, who predominated, had the right of residence in Baghdad, which was refused to the Jacobites, and Baghdad contained a Christian quarter called Dar al Rum, 'the abode of the Romans'. Subject to the patriarch there were seven metropolitans, including those of Basra, Mosul, and Nisibin (Nisibis), each with two or three bishops of separate cities beneath him. The investiture of the patriarch was confirmed by the Caliph, who recognized him as head of all the Christians of the empire. The Jacobites of Iraq had a monastery at Baghdad and a metropolitan bishop at Tikrit. Many Christians held high office in the Caliphate. There were several Christian vizirs in the ninth and tenth centuries, and most of the physicians of the Caliphs were Nestorians. As late as 1138 the privileges of the Nestorians were confirmed anew by Muktafi, though with the advent of the Seljuk Turks the tradition of tolerance began to fade away. The thoroughgoing anti-Christian tradition of Islam seems to originate in the East, with the barbarian conquerors of Turkish and Mongolian race. The Abbasid period was indeed the hey-day of the Nestorian missionary effort when churches were founded in India and China.

Jews fared as well as Christians. Prior to the Moslem conquest Judaism had spread widely in southern Mesopotamia. There were great universities and seminaries where Jewish scholars worked out the rabbinical system and composed the Mesopotamian Talmud, which has been of greater importance than the Palestinian version. Under Islam Jews were subject to disabilities similar to those of the Christians, but Judaism flourished and the colony at Baghdad

had in 1170 ten rabbinical schools and several synagogues. Mesopotamian Judaism was very strict in its rules. The Karaite sect, the 'sons of the writing', in particular, which arose during the eighth century, insisted on the authority of the written word, rejected all oral testimony, and rigorously interpreted the Law, especially its obligations concerning marriage and the Sabbath. The chief rabbi or Prince of the Captivity, *Resh Galutha*, was regarded as the political head of all Jews within the Caliphate, and was a great figure in the life of the capital.

The *Sabians* or *Mandeans* of the lower delta, thrice mentioned in the Koran, were the third of the Peoples of the Book. They originated as a special sect devoted to baptismal rites in the Parthian period and have survived into modern times. Another and more learned pagan sect, the Sabians of Harran, adopted this name to secure it protection, and contributed much, like the Nestorians, to the education of the Moslems in Greek thought.

Abbasid Civilization

The Arabs brought with them no literature except one book, the Koran, and their ballads of desert life, which were not written down. To explain the Koran, which was not allowed to be translated, schools of Arabic language and Moslem traditions came into being at Kufa and Basra in Omayyad times. These schools became in the Abbasid period the centres of a great intellectual movement. From small beginnings of grammatical and theological study this developed into the broad Moslem system of sciences by which the civilization of medieval western Europe was itself largely fertilized. The broadening of the basis of thought from purely Islamic studies to philosophy, history, and mathematical sciences was the result of the tolerance of the earlier Abbasids, the assimilation of Arabian and non-Arabian Moslems, and the general mixture of peoples. The main stimulus came from the translation of the philosophical and scientific writings of the Greeks into Arabic. Translation was done under the authority of the Caliphs, who desired to replace the Greek members of their administrative machine by educated Arabic-speaking officials. Mamun in particular established an academy of translation, Bait al Hikmah or House of Wisdom, at Baghdad. Many of the translators were Nestorian Christians and pagan Sabians of Harran, who turned Greek originals into Syriac (a form of Aramaic), which was done into Arabic by others. Thus the medicine of Galen, the astronomy and geography of Ptolemy, the logic of Aristotle, the geometry of Euclid, and the

metaphysics of the Neoplatonists reached the inquisitive minds of the Arabs, who responded by applying, synthesizing, and developing them. But of the literature proper of the Greeks they knew nothing: Arabic history, biography, essays, and poetry (drama they lack) were never influenced by the classics of Greece.

Philosophy and Scholarship

Greek thought inspired free speculation and gave rise to unorthodox religious movements such as the Mutazilites, believers in free will (p. 251), who were publicly supported by Caliph Mamun (813–833), and later to the mystical tenets of Sufism (p. 252). There was a corresponding orthodox reaction which succeeded only by adopting the philosophical technique of its opponents. This Arabo-Greek logic developed apace, and various orthodox Moslems produced a reconciliation of Aristotelian philosophy and Islamic faith. Chief among them was Ashari of Baghdad (d. 933). But in the reign of Mutawakkil (842–861) there was persecution of free thought and the Sufi mystic Hallaj was done to death in 921. At the same time there was a codification of the Sunna or Traditions of Islam, which had the effect of excluding the sources of 'error' and heresy from the accepted scriptures of Islam. Six canonical books of Traditions were recognized, of which two, those of Bokhari and Muslim, rank next to the Koran.

Thus the period of intellectual liberty shaded off, under the Buwayhid protectorate (p. 245), into a period of consolidation: the foundation of libraries and universities, the development of a highly artificial prose style, and the codification of learning marked the decline of genius and invention. But the output of the first three centuries of Islam had already been enormous, and the deadening Turkish rule (1055–1258) saw the 'Silver Age' of Arabic literature in which court officials cultivated only the strictly orthodox in thought and learning. Encyclopaedias, universal histories, and Koranic commentaries were the main productions. Institutions like the Nizamiya at Baghdad, founded by the vizir Nizam al Mulk, encouraged the amassing of knowledge rather than the development of thought. Already in Iran a new non-Arabic literature was beginning with the revival of the Persian language, and the primacy of Arabic learning was passing from Iraq back to Syria, where the Hamdanid dynasty of Aleppo and the career of Saladin (p. 246) caused a revival that cast the dictionary writers of Iraq still more in the shade.

Physical Sciences

The sciences in which the Arabs succeeded best were mathematics, astronomy, medicine, and geography. The arithmetic and geometry of Mohammed ibn Musa (Khwarizmi, 780–850) was translated into Latin and remained a standard text-book of Europe till the sixteenth century: this work introduced to Europe the Arabic numeral system based on the use of the zero cipher, borrowed from the Hindus. His astronomical tables were translated by Adelard of Bath (1126). The astronomers of Mamun's observatory at Baghdad, using quadrant, astrolabe, dial, and globes, made accurate determinations of latitude and longitude, verified the precession of the equinoxes, and even measured the length of a terrestrial degree on the flat plains of the Jazira, finding a length of $56\frac{2}{3}$ miles (an excess of only 2,877 ft.). From the astrology of Baghdad, ever a Mesopotamian interest, the knowledge of the law of tides reached Europe.

Medicine, partly inspired by Nestorian teachers, was helped by the institution of hospitals, such as that of Harun at Baghdad, where Razi (Rhazes, 850–923) wrote his summary of medical knowledge, the *Continens*. This with the *Canon* of Ibn Sina (Avicenna, 980–1037) served in Latin translations as the basis of the medical knowledge of Europe from the twelfth century to the seventeenth. Razi wrote a noted monograph on the treatment of small-pox and measles which contains the first clinical account of small-pox, while Ibn Sina recognized the contagious nature of phthisis.

In *chemistry* the Arabs were less successful. Their observation was sound, but their deductions and formulations of general principles were weak. Also they were led astray by the search for the Philosopher's Stone and the Elixir of Life, errors which they transmitted to Europe. But Jabir of Kufa (*c.* 776) described the processes of calcination and reduction, and the Persian Biruni determined the specific gravity of eighteen precious stones and metals.

Geography—technically based on Ptolemy and sound astronomical observations—was encouraged by the wide span of the Moslem world, the tradition of pilgrimage, and the long journeys of traders. The imperial postmasters wrote itineraries with topographical and economic details. Khwarizmi made a map of the world and the heavens with the help of sixty-nine assistants. Systematic geographies of the Moslem world were written in the tenth century A.D., complete with coloured maps, by Ibn Hawqal and others; they contain the modern notion of the geographical region treated in all its aspects. The

series ended with the exhaustive geographical dictionary of Yaqut (1179–1229), a Baghdadi slave by origin. This mass of geographical observation was not translated into Latin and made no direct impression on European thought until the seventeenth century.

The *historical* writers, who in industry and soundness of method rivalled the geographers, remained unknown to Europe until modern times. The great books were those of Masudi (d. 956) of Baghdad, who treated history by topics or themes, and the 'annals of the apostles and kings', written in chronological order, of Tabari (836–923), who came to Baghdad from Tabaristan. In fiction, as in history, the Moslems had no Greek teachers. The characteristic form was the Maqamah, created by the Persian Hamadani (*c.* 1000) and successfully imitated by Hariri of Basra (1054–1122). The Maqamah consisted of dramatic anecdotes, in rhyming prose and snatches of verse, relating the adventures of a witty vagabond. The well-known *Arabian Nights* is a late Egyptian recension of popular tales of mixed origin, the first drafts of which go back to Abbasid times.

Jurisprudence and Theology

The Moslems rivalled the Romans and Byzantines in the completeness of their legal system. Moslem jurisprudence, unlike history and fiction, was influenced somewhat by the Byzantine–Roman system in principle and method. The main 'rites' or schools of thought originated early in Abbasid times, from the teaching of the jurisprudents of Baghdad and Medina. A traditional discourse between Mohammed and his legate Muadh runs:

Mohammed: How wilt thou decide when a question arises?
Muadh: According to the Book of Allah.
Mohammed: And if thou findest nought therein?
Muadh: According to the Traditions of the Messenger of Allah.
Mohammed: And if thou findest nought therein?
Muadh: Then shall I apply my own reasoning.

In Islam, theology and law or *sharia* are akin, both being based on the Koran and the Traditions. Their sphere is within the gap left by the silence of these sources. The ferment of thought in the Abbasid period was much concerned with these silences, and there emerged schools of thought and heresies which still dominate Islam. The Mutazila movement, starting from the doctrine of free will and a knowledge of Greek philosophy, led to wide and free speculation

in the days of Mamun, who greatly encouraged it, but it was checked by an orthodox reaction under Mutawakkil, of which the champion was Ibn Hanbal (d. 855). From his conservative teaching based on the Koran and the Traditions and the refusal 'to ask the question why' there grew up the Hanbalite school or rite of Moslem law. The other three schools, of far wider influence, allowed a greater place to reason in determining the law where the Traditions were silent. The liberal Hanifite code, derived from Abu Hanifa (d. 767), who taught at Baghdad and Kufa, allowed analogical deduction and the notions of legal fiction and equity. Malik ibn Anas (715–795), an Arab of Medina, established the principle of interpretation based on the consensus of opinion. A mixture of the Hanifite and the more conservative Malikite school produced the doctrines of the school of Al Shafii (767–820) which admitted a limited freedom of speculation. These principles of analogical deduction and consensus of opinion gave a pliancy to the rigid system of Sunni Islam so that it could, within narrow limits, be adapted to circumstances.

The rites answered the Mutazilites in matters of behaviour and religious practice. There remained metaphysical speculation. Orthodox creed and thought were re-established on a sound logical basis by diverting the philosophical method of the Mutazilites to Sunni ends. In Iraq the leader of this Moslem scholasticism was Ashari (d. 933), whose system gradually prevailed throughout Sunni Islam, after a stern tussle with the Hanbalites, who applied their refusal of discussion to beliefs as well as to law. 'Al Mutazila', went the saying, 'held their heads high, but their dominion ended when God sent Ashari'.

Sufism. The Mutazilites were succeeded by the teachers of Sufism, which is the form taken by mysticism in Islam. The early Sufis were simply ascetics. Later the love rather than the fear of God became the object of a devotional system which assimilated many foreign ideas from Christian, Persian, and Buddhist sources. This ran to excess in interpretations of the Koran and tended to the neglect of religious practices accepted by all Islam. Eventually pantheism and the identification of the individual with the deity appeared, and consequent antinomianism and disregard of normal rules of morality. But Sufism at its best was a spiritual force which, like the great monastic movements of medieval Christianity, continually brought fresh life and vigour to orthodox religion. Its greatest representatives in Iraq were Hallaj, martyred in 921 for declaring 'I am the Truth', and the more orthodox Ghazzali (1059–1111), originally

a professor and finally a preacher at Baghdad. Ghazzali worked through all the tendencies of Islam, both Sunni and Shia, before finding satisfaction in Sufism, which he merged with the older scholastic theology.

From Sufism there arose certain practices quite extraneous to simple Islam, particularly the formation of Orders formed for instruction and propaganda in particular doctrines; these brotherhoods, the only ecclesiastical organizations of Islam, have maintained Sufi thought down to the present day. The notion of the saint or Wali, 'friend of God', is Sufi in origin. One of the first Walis accepted by the orthodox was the Sufi poetess Rabia of Basra (717–801).

Shiism. Though the Shia Moslems had supported Abbas, they gained no advantage from the Abbasids; Mamun alone favoured them and Mutawakkil persecuted them, destroying the tombs of Ali and Husain. Hence the Shias were against the government, and their faith developed after its own fashion by the multiplication of peculiar sects and secret societies. They had no use for the Sunni rites and theology, nor for Sufi mysticism. Their distinguishing doctrine is belief in the Imams, the descendants of Ali, divinely protected from error and sin, who inherited from Mohammed both his temporal power and the gift of interpreting the law. The strict Shias do not, however, deny the finality of Mohammed's prophethood. The line of the Imams terminated with the twelfth, Mohammed, in 878. From his mysterious disappearance at Samarra there grew up the doctrine of his 'second coming', that he will reappear as Mahdi ('the divinely guided'), restore the true Islam and initiate the millennium. In the meantime the Shia mujtahids or theologians act as his spokesmen.

The *Ismailis*, a Shia sect, accepted Ismail (d. 760), the elder brother of the seventh Imam, who had been rejected by his father because of drunkenness, as a true Imam. The Ismailis developed a system of initiations, rather like Freemasonry, and of secret or inner (Batin) metaphysical doctrines derived apparently from Graeco-Persian thought, and reconciled with the Koran by allegorical interpretation. They sent secret missionaries through the Moslem world to spread their beliefs and to prepare for revolution against the Abbasid Caliphate. Their history and doctrines still remain obscure, but certainly their greatest political success was the founding of the Fatimid Caliphate of north Africa (A.D. 909).

The *Carmathian* sub-sect, based on a primitive communism, was founded by an Iraqi peasant, Hamdan Qarmat (*c.* 880), who was very successful in the founding of revolutionary guilds and cells. These

took part in the Zanj rebellion (p. 244) and later formed a State in Hasa on the Arabian coast of the Persian Gulf, whence they terrorized southern Iraq and Baghdad. From the Ismailis there sprang (about 1090) the *Assassins*, a free-thinking secret society whose headquarters were in Persia. The order had its grand master, priors, and junior agents or 'fidais'. According to Marco Polo, 'When the Old Man would have any Prince slain, he would say to such a youth: "Go thou and slay So and So, and when thou returnest my Angels shall bear thee unto Paradise".' The main activities of the Assassins, so-called from the hashish with which they drugged themselves, were in Syria and Persia. Their greatest feat in Iraq was the murder of the Seljuk vizir, Nizam al Mulk (p. 245).

IV. THE OTTOMAN EMPIRE

Mongols and Turkomans, A.D. 1258–1508

THE period between the Mongol conquest in 1258 and the establishment of Ottoman Turkish administration in 1514 was the Dark Age of Iraq. The background of Moslem religion provided continuity with the past, but in political and social life and general civilization Iraqi history made a fresh start. Though some of the Il Khans patronized the conquered civilization at their courts, Abbasid culture had fled with the Caliphate to Egypt. The devastation of Hulagu was renewed in an even worse form by the kindred Mongolian hordes of Timurlang or Tamerlane in 1401. The Mongols destroyed for destruction's sake because they wished to erase the peasants from the sown lands in order to create grazing-grounds for their own nomadic flocks and herds. In Baghdad alone Timurlang built 120 towers with the heads of the dead. Not only were whole cities and populations erased, but there was no hope of recovery, particularly in Iraq, because the machinery of government and administration disappeared on which the maintenance of the irrigation system depended; the major canals themselves seem to have been less seriously damaged than has sometimes been assumed. But the destruction of agriculture was completed by the immigration of fresh beduin tribes from Arabia which occupied permanently the wilderness created by the Mongols, and the country acquired those characteristics of tribal domination which persisted till the twentieth century.

The early Il Khans ('tribe-lords', as distinct from the Great Khan of Mongolia to whom they owed allegiance) came near to adopting Nestorian Christianity, but the seventh, Ghazan (1295–1314), became



124. *The Sack of Baghdad by Hulagu Khan,*
A.D. 1258



125. *Tamerlane, the Mongol*



126, 127. *Mongols of Central Asia in the 13th Century*

a devout Moslem and restored the religious supremacy of Islam. It was Timurlang who broke the strength of the Nestorian Church by ferocious massacres which left only a pitiful remnant of Nestorian communities in the Hakâri mountains of Kurdistan, whither they are supposed to have fled for refuge from the plains of northern Iraq. Thus the Mongolian invasions put an end to more than the continuous development of Islamic civilization. They caused an absolute rupture in the material organization which had existed unbroken for five millennia, since the days of Sumer and Akkad.

Politically Iraq was a province of Mongolian or Turkoman empires with capitals usually in Persia at Tabriz. The Il Khans were succeeded by the Jalair (1339–1406), who were displaced after Timurlang's great raid by Turkoman dynasties known as Black Sheep, Kara Koyun (1411–1467), and White Sheep, Ak Koyun (1467–1499), nominal vassals of the Timurids of eastern Persia. Government remained that of an occupying army throughout and the dominant way of life was still nomadic, though a Mongolian Amir had restored the walls of Baghdad in 1405.

This state of affairs was ended by the emergence of two stable and efficient powers, the Ottoman Turkish empire in Asia Minor and the Persian Empire of the Safawid dynasty. This latter was founded by Ismail, a fervent Shia who traced his family back to the seventh Imam. In 1499 Ismail overthrew the Turkoman White Sheep who had become masters of all Persia, at the battle of Nakchawan, occupied Tabriz and was proclaimed Shah. The White Sheep still held out in Iraq, but by 1508 Ismail had taken Baghdad.

External events in Europe also tended to the ruin of the old civilization. Portuguese seamen opened the Cape route to the Far East, and the importance of the great transit routes from Asia to Europe by Iraq declined (p. 233). By 1514 Albuquerque's fortress and trading station at Ormuz (Hormuz) closed the Persian Gulf to shipping other than Portuguese, and diverted Indian and Far Eastern trade, for which Ormuz was the entrepôt, to the Cape route. Trade and agriculture, the twin pillars of prosperity, were broken, and the continuous history of the ancient Babylonia reached its final stop.

Ottoman Rule from A.D. 1514 to 1831

In 1508 Iraq might have become a permanent part of the new and civilized Persian kingdom. But contemporary with the revival of Persia was the establishment of the aggressive Ottoman Turkish Empire in Asia Minor. Iraq was the borderland between the two

Powers not only geographically but in religion, being Shia in the south like Persia, and Sunni in the north like the Ottomans. There ensued a struggle for Iraq which soon ended in favour of the Turks. Selim I (the Grim), who revived the Caliphate in the person of the

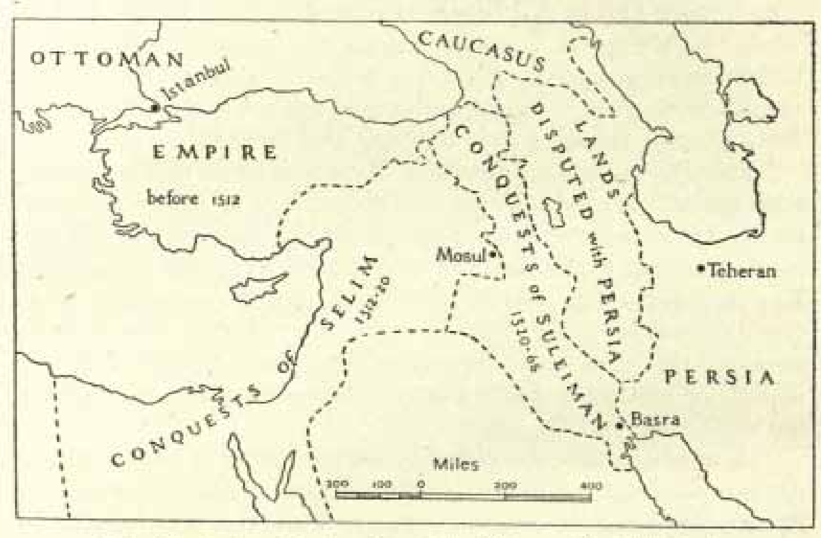


FIG. 56. *Eastward expansion of the Ottoman Turkish Empire*

Sultan, added to the Ottoman Empire the Arabic-speaking states south of the Taurus, first Iraq and later Egypt, Syria, and the Hejaz. In 1514 he defeated Ismail in a great battle at Chaldiran near Urmia and occupied Tabriz. As a result northern Iraq fell to the Turks, but southern Iraq and Baghdad remained Persian till Ismail's death in 1524. Then a military adventurer named Dhul Faqar overcame the Safawid Khan of Baghdad, seizing the city and southern Iraq as titular vassal of the Ottoman Sultan. In 1530 he was defeated and killed by Shah Tahmasp, but in 1533 the Ottoman Sultan Suleiman the Magnificent returned to the attack, and in 1534 occupied Baghdad. The Arab dynasts who had long ruled Basra duly acknowledged Ottoman sovereignty, but in 1546 they were expelled and direct rule was instituted there.

Turko-Persian Conflicts

Thus Iraq became and remained a frontier province of the Ottoman Empire. But the Persians did not abandon their claims, and Iraq was the scene of intermittent fighting and constant political

intrigue between Persia and Turkey till the nineteenth century. The conflict had roots in religion too. The Ottomans championed a strict orthodox Sunni revival of Islam. Their religious and legal system was wholly orthodox, based on the Hanifite rite, and the general code of law of Ibrahim Halevi (1470) revived the crusade against infidels as the object of Ottoman power. But the Persian Safawid Empire was Shia and made of Shiism a national religion. Yet its shrines and holy cities were in Iraq, and the Shia population of south Iraq, including a Persian minority, naturally looked towards the Shahs. Again, in the central Zagros, Sunni Kurdistan was divided between the two empires and its leaders intrigued with both sides.

The ill-treatment of Shia pilgrims was a frequent cause of trouble with Persia, and led to a great inroad in 1589 when Baghdad was besieged, and only relieved by the Turkish general Jighalzada 'the Cicala', famous in Iraq for his benefactions to both Shia and Sunni shrines. About this time in Kurdistan Ottoman influence first penetrated into the Persian zone of Ardalan, only to be decisively excluded later by the Persian vassal Khan Ahmad Khan (1605–1625), agent of Shah Abbas. In 1623 Shah Abbas invaded south Iraq and was admitted to Baghdad by the remarkable treachery of its then ruler, Bakr the Su Bashi, or Lieutenant of Police, a Janissary who had seized the supreme power but failed to gain the approval of Istanbul. A persecution of Sunnis ensued and Iraq, south of the Great Zab, became for 15 years a Persian province, though Basra held out under a local dynast, Afrasiyab (p. 259). After two Ottoman expeditions had failed in 1626 and 1630 Iraq was recovered in 1638, when Sultan Murad IV led his army in person, and the peace of 1639 became the basis of frontier relations for the following centuries.

In the eighteenth century there was another great conflict. The Safawids of Persia were broken by Afghan conquerors (1720–1729), who in turn were overthrown by Nadir Quli, a Persian tribal leader who was proclaimed Shah in 1736. Nadir was responsible for a remarkable attempt to end the Sunni–Shia schism by proposing that the Ottoman Caliph should recognize the adherence of the Shias to orthodoxy as a fifth rite called the Jafari, in addition to the four orthodox rites (p. 252). But the troubles of Persia inspired both Russia and Turkey to partition its territory between themselves. Turkish armies, led by the Mamluk Pashas of Baghdad (p. 259), occupied Kermanshah and Hamadan (1723–1727), but were driven out by Nadir Quli in 1730–1731. Then Nadir invaded Iraq itself. Baghdad underwent a long and bitter siege (1733) from which it

was saved first by the heroic Othman the Lame, and later by a revolt in Persia which withdrew Nadir from Iraq. War continued and the Iraq campaign was renewed in 1743, when Kirkuk fell to the Persians and Mosul withstood a ferocious siege. The struggle ended in 1749 with a return to the frontiers of Murad IV. The next flare-up was in 1774–1778, when the Persian regent Karim Khan intervened in Iraqi Kurdistan and established his nominee at Qala Chulan, centre of the Kurdish district between the Little Zab and Diyala. The Persians also invaded the extreme south and after a siege took Basra, which they held till 1779. Then internal dynastic divisions put an end to Persian claims on Iraq, and the frontiers of Murad IV were again restored.

In 1818 the intrigues of the Persian ruler of Kermanshah with the Baban rulers of Koi Sanjaq and Sulaimaniya (p. 262) ended in another invasion of Iraq through Kurdistan which nearly reached Baghdad. Disease and tribal guerrillas rather than the regular troops drove him out, and the *status quo* was restored (1823).

Internal Affairs

Ottoman government, established by Sultan Suleiman the Magnificent, was at first welcomed by the inhabitants. To the Sunnis the Sultan was the Caliph, while the Shias found tolerance. Sunni and Shia shrines alike were restored or improved. Karbala was protected from floods by the still existing dike; the Husainiya canal was cleared and widened. The Turks also came to terms with the Christian minorities by recognizing them as national groups or *millets* which enjoyed communal autonomy under the jurisdiction of their religious heads. Succeeding Pashas of Baghdad maintained this tradition of benevolence, but Ottoman rule was foreign and military; the principle of government was that the subject peoples were *rayah* or cattle to be exploited. The garrisons of Janissaries, slave troops who kept order in the major towns, had no local sympathies. The country was nominally divided into the four ayalats or pashaliks[1] of Mosul, Kirkuk, Baghdad, and Basra, but Turkish influence outside the cities and big towns was indirect or non-existent. The beduin tribes, who had greatly encroached on the settled land in the past three centuries, were independent. The tendency was for the establishment of local dynasties, only nominally dependent on the Turks, which were more successful than they in dealing with the tribes.

Thus when about 1600 the people of Basra expelled their Turkish

[1] Pasha was properly the title, not the office, of the governor (*vali*) of an ayalat (later *vilayet*), or number of ayalats.

Pasha and his Janissaries, the Sultan accepted the ringleader Afrasiyab and after him his son Ali as Pashas of the ayalat. They succeeded in controlling the tribesmen of the lower delta and in keeping the Persians out of their territory (1624–1625). Firm government and security brought great wealth to Basra: 'the prince of Balsara is so good a husband that he lays up 3 millions of livres a year,' wrote a traveller. But the last of the house, Husain (1650–1669), grew so insubordinate that direct Turkish rule was restored by force of arms.

The Mamluk Pashas

In the eighteenth century the Sultan at Istanbul, distracted by European wars, gradually lost control of Iraq. The great services rendered by Hasan Pasha, Governor of Baghdad (1704–1723), and his son Ahmad (1724–1747) in the wars with Persia enabled them to found a dynasty which gradually usurped the authority of the Sultan throughout Iraq and lasted for 127 years. Spasmodic intervention by Istanbul always ended with the restoration of the family. The core of their power was in the ayalats of Baghdad and Basra, but they also controlled and sometimes themselves held Mosul and Kirkuk, and also Mardin north of the Jazira. Thus the geographical unity of the country which is now Iraq tended to reassert itself. The real strength of the dynasty lay in the administrative body which they created, the 'Chambers' of Circassian slaves or Mamluks from Georgia. These slaves, who were organized in grades for different duties of household or state affairs, proved vigorous efficient administrators and military officers. From their ranks came the successors of Ahmad, usually related by marriage to him or to one another. The most notable were Sulaiman, called Father of Night or Abu Laila from the speed of his campaigns (1749–1762); Umr (1764–1775) the weakest of the Mamluks; Sulaiman (1779–1802) surnamed the Great (Buyuk), who won the fivefold pashalik in the siege of Basra (p. 258); his son-in-law Ali (1802–1807); and Daud Effendi (1817–1831), the last to hold the suzerainty of the five provinces.

These Pashas were the first government to attempt to cope with the tribal problem. By alliances, by dividing tribe against tribe, and by vigorous punitive expeditions, they kept some sort of order between the desert and the sown. By similar methods they also controlled the ruling families of Kurdistan and prevented any dangerous unification of Turkish and Persian Kurds. But a great part of their power was indirect, even in the towns. Local dynastic families ruled in Amadia, Koi Sanjaq, and Ruwandiz, generation

after generation. At Mosul for over a century after the pashalik of Abdul Jalil in 1726, members of the Jalili family generally held the government as loyal vassals of the Mamluks. Haji Husain Pasha, hero of the siege of 1743, was the most famous.

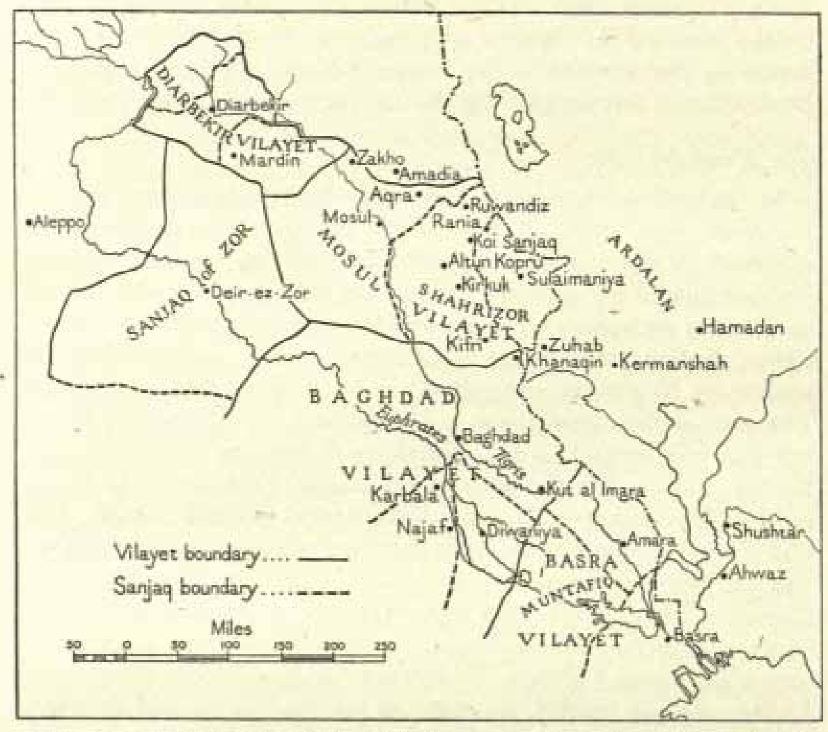


FIG. 57. *Ottoman Iraq in the 18th century and the 19th-century Vilayets*

The Mamluk system was finally swept away by the energetic Sultan Mahmud II (1808–1839), who renovated the Ottoman Empire by military and administrative reforms, including the abolition of the Janissaries and the introduction of European training, the modernization of the administration, and the re-establishment of direct rule over the ayalats. Daud Effendi resisted all these changes except the abolition of the Janissaries. He had also offended by his incapability in the Persian crisis of 1818–1823 and against the Wahhabis (p. 261), by high-handed behaviour towards the trading representatives of European Powers, and by the general corruption of justice and taxation under the Mamluk system. Also he had given no help in Turkey's nearly mortal war with Russia (1829). He ruined his

cause by murdering the first envoy sent to displace him. The second, Ali Ridha Pasha, came with an army (1830), but Mamluk resistance was broken by an appalling outburst of plague, succeeded by flood, which together ravaged Baghdad. After sporadic resistance Daud surrendered. He was sent to Istanbul, where his immense learning secured pardon and re-employment in Ottoman service (photo. 129).

The Arab Tribes

The breakdown of government in the Mongol period had enabled the beduin tribes to encroach greatly upon the settled land and had also permitted the entry of fresh tribes from Arabia. This process still continued in the seventeenth century when the great tribe of the Shammar entered Iraq from Nejd (1640) and fought for the grazing lands held by the Anaiza and Muwali, west of the Euphrates. The Muwali were broken and driven into Syria, but the Anaiza eventually prevailed and thrust the Shammar across the Euphrates into the Jazira. One branch, the Shammar Toqa, crossed the Tigris and set up tents from the Diyala nearly to Kut. The Ubaid tribe was thereby displaced and took grazing-grounds astride Jabal Hamrin. Somewhat earlier, a group of smaller tribes on the lower Euphrates below Samawa were united under the shaikhly house of Al Shabib to form the Muntafiq. A new tribal dynasty founded by the Shaikh Sadun about 1738 made them a major tribal power, which was often in alliance with the Mamluk Pashas. On the lower Tigris also the tribal map was taking shape. The Bani Lam, a new group founded by the great Shaikh Hafidh, took the lands between Shaikh Saad and Amara and restricted their kinsmen the Bani Rabia to an area north of them around Kut. East of the Shatt al Arab in Persian Arabistan the Chaab established themselves, built a fleet (1757–1760) and dominated the river, siding with Persian or Turk as seemed profitable.

The beduin tribes shared with the towns and the Pasha's tax-collectors the profits of the surviving caravan trade (p. 264). Politically they were independent or nominal vassals, but the Mamluk Pashas kept relative order, protecting towns and peasants from beduin excesses. The Sunni tribes were always ready to assist in wars against the Persians, and later against the Wahhabis. But the Shia tribes, notably the Khazail shepherds in the region of Najaf, were ever troublesome and sometimes pro-Persian.

The Wahhabis of Nejd

About 1800 the new religious and tribal movement of the Wahhabis threatened Iraq from Arabia. Their founder, Mohammed ibn

Abdul Wahhab (1703–1791), who had studied at Baghdad and Medina, adopted the strictly orthodox 'Hanbalite' system (p. 252) and preached a return to the primitive simplicity of Islam. By converting Mohammed ibn Saud of Dariyya, the head of an Anaiza family in Nejdi Arabia, he gained military support. The Wahhabis built up a local empire in Nejd and began to press into Iraq. By 1790 Wahhabi raiders, fierce against all Moslems whether Shia or Sunni who did not accept reform, were regularly raiding the desert encampments, and jeopardizing the pilgrim routes to Mecca. But their revivalism failed to grip the majority of the Iraqi tribes. First the Muntafiq, then the Shammar and Ubaid, joined forces to resist them. In 1801 the Wahhabis shocked both Turks and Persians by a ferocious sack of Karbala and later by unsuccessful raids on Najaf. In 1804 they assailed Basra, and their raids continued for many years, but they generally failed against defended cities and knew little of regular warfare. The power of the Wahhabis was broken by the Egyptians under Ibrahim Pasha, who invaded Nejd from the Hejaz and captured Dariyya (1815–1818), a blow from which the Saudi dynasty did not recover until after 1900 (p. 318).

Local Dynasties of Kurdistan

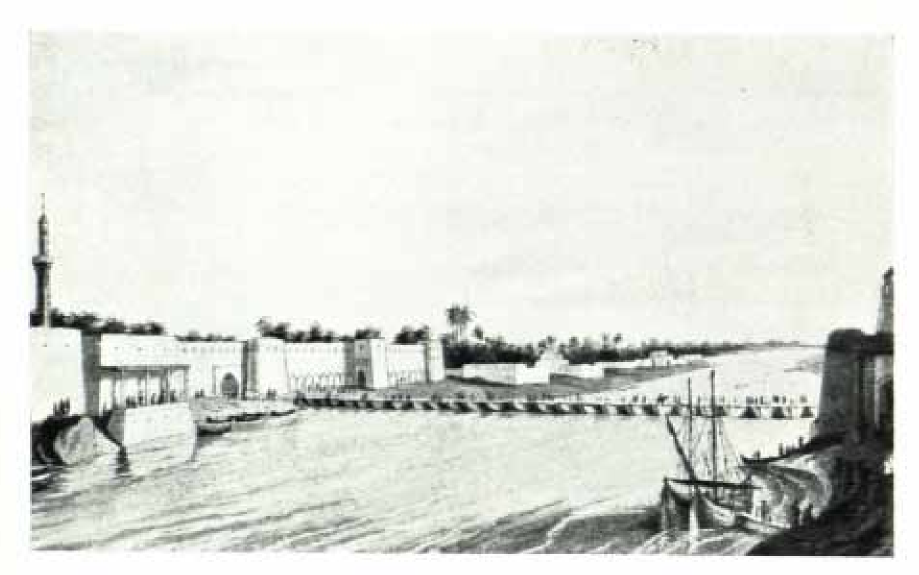
The Pashas of Mosul and Kirkuk governed directly only the open plains near the cities. The rest of Kurdistan was ruled, nominally as Sanjaqs, by local Kurdish dynasts, the Dere Beg or valley lords. The tribes between the Tigris and the Great Zab centred on Amadia with Dohuk, Aqra, and Zakho as dependencies. At Amadia, remote and defensible, the Bahdinan family ruled in virtual independence till Ahmad Pasha reduced them to effective vassalage (*c.* 1730). The region between the two Zabs was divided between the principalities of Ruwandiz and Koi Sanjaq, where the Soran family ruled. At the very end of this period Mohammed, blind Beg of Ruwandiz (1826–1833), expanded his territory at his neighbours' expense to include all the lands of Koi Sanjaq and Amadia.

The main Kurdish power was that of the Baban house, which during the eighteenth century built up its power in the valleys between the Little Zab and the Diyala, a district then known as Shahrizor.[1] The south-western limit was the line of Turkoman villages between Altun Kopru, Kirkuk, and Kifri. The Baban capital was the village of Qala Chulan until the building of Sulai-

[1] The connotation varies; originally the Halabja plain, then the whole Baban principality, in the 19th century it was used for the Sanjaq of Kirkuk *excluding* the Sanjaq of Sulaimaniya.

128. *Bazaar at Mosul in 1816*

129. *Mamluk Pasha leaving the Sarai Mosque at Baghdad in 1816*



130. *Hilla in 1818*



131. *Ana in 1836*

maniya in 1781. After the invasion of Persian Ardalan in 1694 by Sulaiman Beg, the first notable Baban, these rulers never ceased for two centuries to attempt eastward expansion of their power. The general division between Persian and Turkish Kurdistan which still exists had been made by the peace of 1639, though the frontier was never exactly determined (p. 268). Not till the beginning of the nineteenth century was the tribal pattern fairly fixed; the Jaf Kurds arrived in Shahrizor to strengthen the Baban in the early eighteenth century and the Hamawand about 1830. The division of the Baban house into rival Persian and Turkish factions dates from the Persian ascendancy and wars of 1730–1743.

Greatest of the Babans was Sulaiman Pasha (1750–1764), who extended his dominions south of the Diyala to Zuhab, and north of the Little Zab into Ruwandiz territory to include Rania, and made the Sorans of Koi Sanjaq his vassals. The region of Khanaqin was added by Ibrahim Pasha, the founder of Sulaimaniya (1781). The loyalty of these Babans and their disciplined Kurdish troops were a main prop of their Mamluk overlords, particularly in the time of the Mamluk Sulaiman the Great. The constant intrigues of rival claimants were encouraged both by Mamluks and by Persians in order to maintain their own ascendancy. The Baban dynasty, though weakened by perpetual division and much dominated by Persia from 1810 onwards, was not replaced by direct Turkish administration until 1850.

European Trade

European maritime penetration began with the establishment of a trading station at Ormuz (Hormuz) in 1514 and of other posts by the Portuguese along the Gulf coast. Their monopoly was challenged in 1600 by the formation of the English East India Company, interested in the silk trade, whose first ship arrived at Jask, in the Gulf of Oman, in 1616. English and Persians joined forces to expel the Portuguese from Ormuz in 1622, and the English were given a station at Bandar Abbas on Persian soil. This they shared with the Dutch, vexatious allies and rivals, while the Portuguese moved to Basra and still held Muscat in the gulf of Oman. A fierce triangular struggle for trade supremacy followed. With the loss of Muscat in 1650 the Portuguese dropped out and the Dutch took the lead, almost monopolizing the import trade of the Shatt al Arab, so that the first British factory at Basra failed (1643–1657).

In the sixteenth and seventeenth centuries the English also sought

to tap the eastern trade by reopening the overland route, and the Levant Company had a great trading station at Aleppo (whither Shakespeare's sea-captain 'the Master of the Tiger' was supposed to sail), which was the western terminal of the desert route to Baghdad or Basra. As a trading venture this method could not vie with sea-borne commerce except for the more valuable cargoes—'spices and precious stones, pearls, and cloths of silk and gold'—but caravans of 400–600 freight camels were common, and the route ceased to carry trade only at the end of the eighteenth century. It was also used by political and commercial agents of the great companies as the quickest means of journeying or sending dispatches between Europe, the Persian Gulf, and India. Many travellers, including several Englishmen, have left remarkable descriptions of these journeys.

Though the East India Company gained from Istanbul in 1661 the Capitulations on which its later position in Iraq was built, fixing customs duties on English trade at 3 per cent., all practical results depended on the caprice of the local rulers, and the factory at Basra was not reopened till about 1725. The Dutch were supplanted and moved their station to Kharg island in 1752. French agents with consular rank arrived in 1755, but the British interests rapidly became dominant. The Company kept a Resident or *Baleos* at Basra with consular rank, whose office was moved to Baghdad in 1798. The great economic power of the Company tended to become political, with influence in town and tribe; the Resident Latouche had helped to secure the Mamluk government for Sulaiman the Great in 1779. The power and prestige of the Resident reached its highest in the time of Claudius James Rich (1808–1821), who was for long the second man in Iraq. At this time the Mamluks were drawing their main supplies, particularly of munitions, from India and thus were dependent on the Company's goodwill. But in matters of detail there was continual bickering between vigorous and scrupulous Residents and the greedy extortionate Mamluks.

The eastern ambitions of Napoleon brought Syria and Iraq into European politics again. When Napoleon held Egypt the desert route was the only speedy road for dispatches left open between England and India, and a regular courier service was started in 1801 from Basra or Baghdad by Aleppo to the Levantine ports. This enterprise led, in 1837, to Colonel Chesney's remarkable exploration of the Euphrates by steamboat from Birecik in Turkey down to Basra, and also of the lower Tigris, which paved the way for the establishment of a British navigation company on the Tigris.

Reformed Ottoman Administration, 1831–1914

After the surrender of the last Mamluk the Turks set to work to establish direct control over all Iraq. One by one the valley lords and dynasts of Kurdistan, at Amadia, Ruwandiz, Mosul, and in Shahrizor, were broken and replaced by Turkish officials with Turkish garrisons. The holy cities of Karbala and Najaf, long autonomous and subject to misgovernment and mob rule, were chastised and garrisoned, and a vigorous attempt was made to break the independence of the tribes (p. 267). The administrative reforms of Sultan Mahmud were expanded by the Tanzimat or Khatt-i-Sharif of Sultan Abdul Majid (1840), a body of liberal reforms and institutions based on European, and mainly French, principles of government and general civilization. The Tanzimat reforms were not put into effect till the government of Midhat Pasha (1869–1872), one of the greatest Turkish statesmen of the nineteenth century, who in his few years at Baghdad reorganized the administration in all departments. The control of the provinces was effected by a new *vilayet* system. Each vilayet or province was under a *vali* or governor-general, responsible direct to Istanbul, and contained a number of *sanjaqs* or districts each under a *mutasarrif* responsible to the vali. Further subdivisions were *qadhas* and *nahiyas* under *qaimmaqams* and *mudirs* respectively. The status of Mosul and Basra varied till about 1880. Thereafter there were three vilayets, Mosul, including Kirkuk and Sulaimaniya as sanjaqs, Baghdad, and Basra. The growth of municipal self-government was also encouraged, not without success; each township had its elected president and council or *baladiya* for the care of streets and public works, and though little was done the glimmerings of civic pride appeared. Primitive forms of sanitation were introduced, and at Baghdad a public hospital was opened. Education was not neglected; though it was most active in the Christian and Jewish communities, official Turkish primary and secondary schools had been opened by the end of the century. But the educational scheme existed mainly on paper. Teachers were untrained and of low moral character, so that Sunni parents refused to patronize them, while Shias held totally aloof.

These reforms, such as they were, all tended to the ottomanization of the country and the introduction of foreign Turkish methods and officials. The administrative changes created a new bureaucratic class of *effendis*, mostly Turkish in speech, race, and sympathy, though Iraqis filled the lower grades; they had a superficial European

liberalism, but at heart were guided by the tradition of 'cattle government', whereby the subject populations existed only to be exploited by the ruling class. In the schools Turkish was the main language and Iraqis who could understand Turkish grew up unable to write their own tongue. The reform of the army introduced conscription, which was unpopular, and the assimilation of the conscripted to their Turkish mates. The greatest weakness of the Ottoman Government was, however, the millennial inefficiency and corruption which no administrative reforms could remove. Nearly all officials, judicial or administrative, had their price. The forces of public order, both the regular army garrisons and the country constabulary or *zaptiya*, were ill trained and undisciplined as well as corrupt. As in previous centuries, order was seldom kept beyond the limits of the towns, while the Turkish tribal policy infinitely aggravated the disorder of the countryside.

Justice, if it could be obtained, depended upon a clumsy civil code (*nizamiya*) devised to replace in part the old religious or *sharia* law and courts (p. 251). The new code, which was a mixture of the old Ottoman system and the Belgian Code, was slow and complicated and had little relevance to the realities of life in Iraq. Similar faults of system and personnel effected the Land Registry established by Midhat Pasha.

Despite the radical vices of Ottoman government, a certain material modernization of the country was effected and the basis laid for later development. The improvement of communications by river and road, the building of the first railway from Baghdad to Samarra, the introduction of a postal service and also of the electric telegraph would all have helped to enrich the population if the twin problems of tribal settlement and agricultural improvement had been successfully handled. Several valis were active diggers of canals, and a great disaster was averted from the Hilla region by the building of Willcocks' barrage (p. 35), but failure with the tribal problem vitiated all and left Iraq by 1914 in a sad condition of poverty and threatening rebellion.

False hopes were raised by the 'Committee of Union and Progress' or 'Young Turk' movement and the Turkish revolution of 1908.[1] A representative parliament was established at Constantinople and the three vilayets returned representatives drawn from the local notables, who were nominally elected by popular vote, which was confined in effect to townsmen. But the Young Turks proved even firmer in

[1] See *Geographical Handbook of Turkey*, B.R. 507, p. 334.

the centralization and ottomanization of the provinces than their predecessors. In reaction the first elements of Arab nationalism began to stir. Secret societies were formed, mainly by young officers, only to be severely repressed when discovered. In Basra vilayet Talib Pasha, son of the Naqib, effectively organized Arab nationalist opinion and secured the rejection of all the Young Turk nominees at the parliamentary elections of 1911 in favour of himself and his partisans. In 1913 he and other Iraqi notables attended an Arab conference at Mohammerah where the future of Iraq was discussed.

Tribal Policy

The Mamluks had treated with the tribal suzerains, if not as equals, yet as feudal vassals, so that tribal chiefs maintained order in their own regions. The new Turkish Valis, treating the tribesmen as fellahin, tried to compel them by force of arms to accept regular taxation and conscription. Till 1869 campaign followed campaign without any permanent success, and at times even Baghdad was blockaded by the tribes. Midhat Pasha saw that the tribesmen could only be brought within the framework of ordered civilization by settling them on irrigated lands with security of tenure. To this end the *Tapu* office was set up, which sold lands on easy terms to tribal shaikhs and also to settled villagers (p. 443). It was hoped by turning the shaikhs into landlords, and their tribesmen into tenants, to make them politically subservient, particularly as their water-supply would depend upon the Government. There was also a policy of ottomanizing the shaikhs by the conferment of Turkish titles and administrative positions and by encouraging them to adopt Turkish manners and education. In general the shaikhs and their tribes refused the bait of lands, distrusting the change of status and fearing conscription. Also through the prevailing corruption the Tapu office sold much land to city speculators instead of to tribesmen. But the policy had several local successes with the Chaab, and the Shammar Toqa, Dulaim, and Zubaid settled in their present localities. The unity of the powerful Muntafiq confederation and the authority of the Sadun family was broken by these means. The tribesmen, unwilling to have their shaikh turn landlord and pasha at once, divided into antagonistic sections. By 1914 the tribes still retained their nomadic or semi-nomadic way of life, but except in the Syrian desert the days of great tribal wars and great tribal confederacies were over. Individual tribes or sections were ever ready to exploit any weakness in government, and the main effect of the breakdown of federal authority

was to create a tribal chaos in this region which still persisted in the Mandatory period.

In Kurdistan the Kurdish tribes were more closely attached to particular localities, but the Tapu office did much to stabilize land tenure in the Assyrian plains. Turkish control remained ever feeble outside the towns and did not exist in the remoter valleys. The recently arrived Hamawand (p. 263) were never mastered but dominated at will Sulaimaniya and even Kirkuk. The period is remarkable for the ruin of hitherto prosperous Sulaimaniya by the misgovernment of the local notable, Shaikh Said, a priestly fanatic in league with the Hamawand (1881–1909). There were outbursts of religious persecution and massacres of Nestorian and other Christians in the Amadia region (1843–1846), and later in Sulaimaniya.

Foreign Relations and the Persian Gulf

The main theme of this period was the consolidation of British power in the Gulf and southern Iraq with the object of checking first Russian and later German plans for the control of the Mesopotamian route to the Indian Ocean. The risk of war in Kurdistan between Turkey and Persia, which was rapidly becoming a second-class Power, declined with the abolition of the Baban dynasty (p. 263). But friction over the exact line or zone of the frontier continued throughout the century, despite the efforts of a frontier commission including English and Russian representatives to map and determine the frontiers (1850–1869). Their labours ended with another reversion to the *status quo*. New difficulties arose from the founding of Mohammerah (1812) by the Muhaisin tribe. This was claimed by both countries and eventually assigned to Persia (1847), though the Shaikh in fact maintained his independence. Agreement over the frontier was reached by another commission in 1913–1914, but final ratification was prevented by the war. The partition of Persia into spheres of Russian and British influence (1907) had excluded Turkish interference, and satisfied Russian ambitions for the time being.

British trade increased throughout the century, as did the political prestige of the Residency and the interest taken by the Government of India in the control of the Gulf and of the Basra vilayet. Close ties already existed with the Sultan of Muscat and Oman, outside the strait of Hormuz, and with the Trucial Shaikhs and the ruler of the Bahrein islands within the Gulf. But in 1869 the grip was tightened by an 'exclusive agreement' between the Trucial Shaikhs and Great Britain by which the Shaikhs undertook

neither to enter into agreements with, nor to make concessions to any other government. The Turks took alarm and sought to strengthen their position at the head of the gulf. Iraq became their base for military operations in north-eastern Arabia. Turkish sovereignty was weakly established in Kuwait, and Hasa was occupied in 1871 and controlled until the expulsion of the garrison by Ibn Saud's Wahhabis in 1913. A garrison was also established at Doha, on the Qatar peninsula south-east of Hasa.

In Kuwait Turkish influence was ousted by the British (1899), who secured Turkish recognition of their treaties with Kuwait in 1913; Kuwait at this time was in alliance with Ibn Saud, who was restoring the Wahhabi dominion, but on bad terms with his rival Ibn Rashid of Hail. British control of the whole Arabian coast of the gulf was completed in 1916 by the formation of another 'exclusive agreement' with the Shaikh of Qatar. At the head of the gulf there was also a close friendship between Britain and the Shaikh of Mohammerah who controlled southern Arabistan, east of the Shatt al Arab; the Turks sought vainly to compel him to admit their suzerainty. British interests were further safeguarded by control of the Shatt al Arab, which had been policed, charted, and, since about 1850, buoyed by the British navy alone. By an agreement of 1913, which consolidated the rights of Britain in Iraq, a joint commission was established for the conservancy and improvement of the channel, and British navigation rights were confirmed and extended; the Boundary Commission of 1913–1914 placed the whole of the channel, except the anchorage at Mohammerah, within Turkey. Thus it came about that in 1914 British gunboats were already stationed on the Shatt al Arab.

While the British came by ship the Germans advanced as usual by railway. After establishing themselves in Asia Minor by railway concessions, they penetrated into Mesopotamia by gaining the concession for the extension of the Istanbul–Konya railway to Baghdad and beyond Baghdad to Basra (1899–1903). The failure of the British to prevent the latter sector from being included in the German concession was a great diplomatic defeat. But by the Anglo-Turkish agreement of 1913 Britain gained representation on the board of the railway and the right to control any extension south of Basra, in addition to the control of the Shatt al Arab mentioned above. Thus the strategic importance of Iraq as providing the shortest route between Europe and India was rapidly reasserting itself.

At this date communications rather than oil deposits were the key to the interest taken in Iraq. But oil had already been discovered in

the adjoining Persian provinces of Shushtar and Arabistan and at points along the Turko-Persian frontiers. Abadan, the terminal of the pipe-line (p. 152), became the oil-port on which British naval squadrons in the Indian Ocean relied for fuel. British interests had also gained control of the Turkish Petroleum Company, formed to exploit the oil of the Mosul area, although no workings had begun; the rest of the shares were in German hands.

The War of 1914–1918

The war brought to an end the long period of Ottoman sovereignty; it illustrated and emphasized many fundamental facts of geography and history; and it laid the foundation of many new problems, both political and economic.

The Arab Attitude

The British invasion was the first in history to come to Iraq by sea. In the past the country had often been a battleground between the races and peoples of Arabia, Persia, and Asia Minor, whose cultures had been generally assimilated. In 1914, however, the Arabs of Mesopotamia, though Moslem subjects of the Ottoman Empire, were antagonistic to it; though recruited into the Ottoman armies, they had no heart for the Ottoman cause, and fought reasonably well only for so long as there was likelihood of a German victory. On the other hand, no important Arab tribe of Iraq ever actively threw in its lot with the British invaders, none rose against the Turks to fight for independence, and the Arab revolt in the Hejaz produced little echo in Iraq, though a few individual Arabs from Iraq fought for the Allies in the Hejaz and Syria.

The Anaiza, the great beduin confederation of the Syrian desert, were an exception. They were under the influence of Colonel Leachman, the remarkable Political Officer for the Desert, whose power with the beduin throughout the war not only rivalled that of Lawrence in the Hejaz but was built up simply on force of character unaided by the ample subsidies which Lawrence so liberally dispensed. The Anaiza never undertook any major military operations, but they helped to blockade the desert. Their efforts did not affect the course of events in Mesopotamia but were directed against caravans sent between the Turks and the pro-Turkish Emir of Hail, Ibn Rashid, in northern Arabia. In Nejd overtures from Ibn Saud for a treaty with the British came to nothing, partly through delay in reaching a decision on policy, partly because of the death of Major Shakespear,

the British officer with the emir, who was killed in an indecisive battle between Ibn Saud and Ibn Rashid in 1915 (p. 318).

In general, the Arabs were opportunists, waiting on events; they harassed the Turkish communications in 1915 when the British drove past Kut to Ctesiphon; in the winter of 1915–1916 they were even more menacing in rear of the British during and after the siege of Kut. It was during the hot weather of 1916 that the Turkish commander unofficially proposed an armistice with the British to enable both to punish the Arabs, so that in the coming winter the two armies could concentrate on each other unmolested by third parties. This suggestion was not accepted, and from 1917 onwards the Arabs were more troublesome to the Turks than to the British. Nevertheless, Ajaimi, the powerful chief of the Muntafiq tribes espoused the Turkish cause to the end. Unlike elsewhere, it was not the policy of the British Government to compromise the future, and, though the Chief Political Officer more than once advised that a statement of policy should be made, guaranteeing Arab freedom from Ottoman misrule, no proclamation was made until after the capture of Baghdad in March 1917, by which time victory in Iraq was assured without their help.

Lack of Preparations

Neither the British nor the Turkish operations were the result of planning in times of peace. Probably no staff exercise had ever taken place in India, even on paper, having as its aim the landing of an expeditionary force at the head of the Persian Gulf; but the Turks were equally unprepared. They were almost as ignorant of the country beyond the river banks as were the British; the navigation of the Tigris to Baghdad was better known to the British than to the Turks—the buoying and survey of the channel being a British obligation (p. 269)—but there were no accurate maps, either Turkish or British, of the country away from the rivers. British intelligence and maps were based on consular reports and on the accounts of a few travellers and archaeologists, some good and reliable, but many very old. On the excellent maps made by British and Indian surveyors during the campaign *both* armies came to rely for detail.[1]

This lack of preparation is extraordinary, but the blame cannot be laid on the Services, which in peace-time were starved of funds. The

[1] In referring to the capture of Major Reilly in November 1915, the official Turkish account records that his sketch-map of the Tigris, from the Diyala to Aziziya, 'was an important map in the eyes of the Iraq Command, for at headquarters and with the troops there was no such thing as a map'.

Iraq route to the Persian Gulf was of great strategic importance to India and to British imperial communications in the Indian Ocean, particularly because of the increasing interest taken in southern Iraq and southern Persia by both the British and Indian Governments in the last quarter of a century. Yet it was not until after the outbreak of war between Britain and Germany, when collaboration between the latter and Turkey almost conclusively proved that Turkey would enter the war on the side of the Central Powers, that the two governments took precautionary military measures to safeguard their interests at the head of the gulf. These comprised the allocation of a small force which in the event of hostilities was to support the Shaikhs of Kuwait and Mohammerah and to protect the oil installations at Ahwaz and Abadan. One brigade of the 6th (Poona) Division, which had been mobilized in September for service in France, sailed under sealed orders from Bombay on 16 October, parted company with the convoy destined for France three days later, and under escort of H.M. battleship *Orion* and R.I.M.S. *Dalhousie* reached Bahrein on the 23rd. The rest of the division was retained in India to reinforce it if necessary. War was declared between Britain and Turkey on 5 November, and the following day the advanced British troops landed at Fao.

The war in Mesopotamia from such small and improvised beginnings became the largest and most decisive of the so-called 'sideshows'. The defensive role of the British force was changed almost unwittingly to an offensive one. Basra was early occupied to cover Mohammerah; Qurna, to cover Basra; Amara and Nasiriya, to control the river routes of southern Mesopotamia; Kut al Imara, to protect Amara and Nasiriya. Up to this point it may be argued that the strategy was defensive. But from Kut al Imara the lure of Baghdad was both politically and militarily irresistible, and after failure at Ctesiphon (22–26 Nov. 1915) at the first attempt, it became all the more necessary to retrieve the subsequent disaster of Kut (29 April 1916). Troops and supplies poured into the country, Baghdad was eventually captured in March 1917, and thereafter the operations in Mesopotamia were co-ordinated with those in Palestine until the defeat of the Turks in Palestine in September 1918 and on the Tigris north of Qala Sharqat in October brought the end. The small force of one brigade which had been allotted the original task in October 1914 had grown to a vast military organization with a ration strength of 420,000 men. Basra had become a great port with extensive riverside wharves; fleets of river-boats passed up the Tigris; railways had

been built and agricultural reorganization had already made great strides.

Geographical Factors

Campaigning in Iraq is almost limited to the cooler months of the year. Only in 1915 did operations extend after the end of the first week in May, and in that year many men died through lack of good water or from heatstroke during June and July, though this was partly caused by lack of medical necessities. Operations never began again after the end of the hot weather until towards the end of September or later. It was thus a fortunate accident that the war broke out in November. There were four winter and one short autumn campaign (in October 1918), each separated by periods of intense heat and boredom for most, but of hard work for the administrative services, work of reinforcement and replenishment of supplies. Unfortunately the campaigning season invariably coincides with the months when movement is most difficult: at the start the rivers are low, and navigation difficult and slow; then rain turns the alluvium of the delta into thick mud, impassable for camel transport and a slough for wheels; the rivers rise to levels above that of the surrounding lands, so that pursuit by land can be checked by deliberately breaking the river *bunds*. Flies, mosquitoes, and other pests are at their worst in the second half of the campaigning season, and sickness is consequently greatest at this time. Mercifully they do not survive the great heat. These facts had an important bearing on the different campaigns; Kut surrendered to the Turks on 27 April 1916 when both British and Turks were exhausted by hard fighting and sickness, so that the hot weather months gave time for reorganization; Baghdad fell to the British on 11 March 1917 while there was still time to occupy advanced positions on the Euphrates, Tigris, and Diyala which rendered its capture secure.

One of the great difficulties of campaigning in Iraq is caused by mirage. Reconnaissance on land becomes extremely difficult within three hours after sunrise, particularly in lower Mesopotamia. Infantry and guns in the early operations often had to rely on look-out reports from the supporting naval craft; guns especially, until they were provided with observation ladders, found observation of fire extremely difficult (p. 181).

The Campaign of 1914–1915

War was declared between Russia and Turkey on 2 November 1914, following the bombardment of Russian Black Sea ports by

German and Turkish warships. Three days later Britain and Turkey were at war.

The operation of landing an expeditionary force at the mouth of the Shatt al Arab had peculiar features. Great Britain had unfettered rights of navigation (p. 269), so that although the navigable channel was within Turkish territory, a naval sloop H.M.S. *Espiègle* with the armed yacht *Comet*, the armed launch *Lewis Pelly*, and two armed tugs were on the Karun at Mohammerah, while a second sloop, H.M.S. *Odin*, had moved down the Shatt and stood off territorial waters awaiting the arrival of the transports. There was no question of surprise, for the presence of the force at Bahrein had been deliberately advertised in order to strengthen the authority of the Shaikhs of Mohammerah and Kuwait and to rally the local Arabs to the British cause. The advanced troops landed at Fao on 6 November, meeting little opposition, and drove the Turks before them through the palm belt, being well supported by fire from the *Odin* and a tug. The first serious opposition was encountered opposite Mohammerah, by which time reinforcements were beginning to arrive by river; here the Turks made a determined stand, but with the help of the *Odin* and *Espiègle* and light auxiliaries the Turks were severely defeated on 15 November, and Basra was occupied on the 21st, the Turks having ineffectively tried to block the navigable channel by sinking three vessels in the fairway, before retreating to Qurna. The occupation of Basra enabled reinforcements to be landed, though facilities for disembarkation were then very limited, and vessels had to be discharged in midstream into native craft which then drifted with the current until within poling distance of the bank.

The advance to Qurna began on 30 November, the force for the operation being transported in river steamers, belonging to Messrs. Lynch, which had been requisitioned from Mohammerah. It was supported by the two sloops and three launches which played an important part both in reconnaissance and in the fighting which followed. These amphibious operations lasted until 9 December, when Qurna was occupied.

These early successes had a marked effect on the local Arabs, who at once became more friendly and more reliable in providing information. But the Turks were jolted out of their early apathy, and reinforcements from Constantinople and from Syria were hurried to Baghdad and to the Euphrates. On the Tigris the Turks took up a position at Azair. On the Euphrates Shaikh Ajaimi raised the Muntafiq to co-operate in an attack on Basra. Unfortunately the

failure of the British to press their advance, under orders from the government at home, caused the more friendly Arabs to change their mind.

The Tigris rose exceptionally in February 1915, a month earlier than usual. The controlling banks above Qurna were broken and most of the British troops had to withdraw to Qarmat Ali. The Turks were almost as much hampered as the British, because the floods which spread over the area west of Basra limited the Turkish counter-attack to the desert south of the Hammar lake, and when it was made on 11 April it had already been anticipated for some time. The combined Turkish and Arab force, in numbers greatly superior to the British, was heavily defeated at Shuaiba, and though after four days' fighting the British could not pursue, the Arabs turned on their erstwhile allies, robbing and murdering the stragglers in flight. Thus all threat to Basra from this side was over for the time being.

Simultaneously there had been trouble on the Ahwaz flank, where the Bakhtiari Khans and local Arabs had been incited to co-operate with the Turks. German agents were also active in southern Persia. A small force had been sent to Ahwaz which prevented serious trouble until the battle of Shuaiba was won, but it then became necessary to free this flank from further danger, restore the supply of oil which had been interrupted, and drive the Turks out of Persian Arabistan. These objects were successfully accomplished during April and May.

Capture of Amara. The operations under General Townshend which followed and led to the capture of Amara were among the most extraordinary of the war. The Turks occupied a strong defensive position about 7 miles north of Qurna with advanced posts on sandhills 4 miles in front of it, the whole marshy country on both sides of the Tigris as far as Qurna being flooded to depths of from 1 to 3 feet, and much of it overgrown with reeds. The flanks were secure, and there was no other course but to make an amphibious frontal assault. During May sailors and sappers at Basra prepared rafts and attached shields to *bellums* (native boats), while the infantry practised themselves in handling and manœuvring the boats. The attack began early on 31 May, when day 'shade' temperatures ranged over 100°, the assaulting troops, engineers, field ambulances, signal units, and mountain guns being carried in 372 *bellums*. Field-guns and howitzers were mounted on horseboats and rafts, and the operation was also supported by fire from sloops, tugs, and launches on the main channels and by any other vessel that could mount a gun.

By four p.m. the forward posts had all been taken and orders were issued to assault the main position on 1 June. Early that morning, however, the single Maurice Farman aircraft reported that the Turks were retreating up the Tigris. Immediately the pursuit began.

It was a naval pursuit, led by the mine-sweeping launch *Shaitan*, which was followed by the sloops *Espiègle*, *Clio*, and *Odin*, the yacht *Comet*, and the launches *Miner*, *Sumana*, and *Lewis Pelly*, mostly armed with 12-pounder guns. This small flotilla soon came within sight of the Turkish river-boats, which at once slipped their troop-carrying barges, so that some of the pursuing vessels dropped behind to collect prisoners. White flags fluttered from villages on both banks as the chase went on, but there was none to accept surrender. By 10 a.m. on the 3rd the *Shaitan*, far ahead of the rest, was within sight of Amara, and a single shot from her 12-pounder completed the operation. Under the command of Lieut. Singleton, R.N., and with a crew of eight ratings, she tied up alongside the bank and accepted the surrender of hundreds of Turkish troops. Four more small vessels, one with General Townshend on board, arrived by 2.15 p.m. and completed the demoralization of the Turks, who were now being plundered by Arabs. Two thousand Turks, retreating on Amara from Arabistan, were scattered by a few rounds from the *Shaitan*. It was not until evening of the following day that any reinforcements arrived. For over thirty hours Amara, with a population of more than 10,000, was held by 10 naval and military officers, 25 naval ratings, 12 N.C.O.s and men, and 4 marines, who had about 1,000 prisoners to guard and order in the town to maintain. Some of the prisoners were marched to the Turkish barracks, there to be guarded by three privates; the rest were placed on lighters in midstream. Thus ended the operation which came to be known as 'Townshend's Regatta', remarkable for the ingenuity of its planning and execution, and far-reaching in its effects, for it undoubtedly led to a fatal under-estimation of the fighting qualities of the Turk.

In order to secure Basra against attack from the Euphrates direction it now became necessary to occupy Nasiriya, the chief town in the Muntafiq area. This operation also was largely amphibious, for the only method of supply was by water, because of the lack of land transport. For this purpose the naval flotilla, now reinforced by river steamers, crossed the Hammar lake on 27 June. Very little up-to-date information about the various Euphrates channels was available. The most important of these, the Akaika, had been dammed for irrigation purposes before the war and the obstruction had to be

demolished before the advance could proceed. The supply vessels had to be dragged through the cut by hawsers manned by the troops, and *bellums* and rafts had again to be employed by the infantry and field guns for the attack. Opposition was considerable, for the Turks were actively supported by large numbers of Muntafiq Arabs, and supply difficulties increased as the flood-levels fell. It was not until 25 July that Nasiriya was at last occupied, and this brought the first campaign to a successful end.

The Campaign of 1915–1916

The operations just described were carried out with comparatively few battle casualties, but had been costly through sickness, particularly among British troops. Effectives were much reduced in the two divisions now in Mesopotamia, the hospitals were full, and drafts were with difficulty spared from Territorial units in India. There were shortages of both land and river transport, and the needs of France and difficulties in Gallipoli loomed large in the eyes of the home authorities; Mesopotamia suffered in consequence, and remained the land of improvisation.

Advance to Kut. After their defeat at Nasiriya the Turks concentrated their main force at Kut, whence they could threaten the divided British forces at Nasiriya by the Shatt al Gharraf and at Amara by the Tigris. Trouble was brewing in southern Persia where German agents were at work, and the defence of this area became a responsibility of the army in Iraq. General Nixon, the G.O.C., and the governments and military authorities in both India and England debated whether to continue the advance to Kut. This was eventually ordered : (1) to protect both Nasiriya and Amara, and so the whole of the Basra vilayet; (2) to prevent Turkish intervention in Persian Arabistan, and so to protect the oil installations; (3) to counter by a successful advance the deterioration of the political situation in south Persia; and (4) to seize a forward base for a possible advance to Baghdad, a project which already had many supporters, and which was becoming politically desirable because of reverses in other theatres of war.

Early in September the British under General Townshend began to concentrate at Ali Gharbi, and by the 16th the advanced troops reached Sannaiyat, 8 miles below the Turkish position on both banks of the Tigris at Sinn, covering Kut. Day temperatures were still high (110°–120° F.), but the nights were some 50° cooler. The river was nearly at its lowest level, and navigation was already difficult.

Additional river transport and gunboats had been asked for but had not arrived, and there was still a great shortage of land transport.

The attack on the Sinn position was well planned and executed. The defect in the Turkish dispositions was that their only bridge

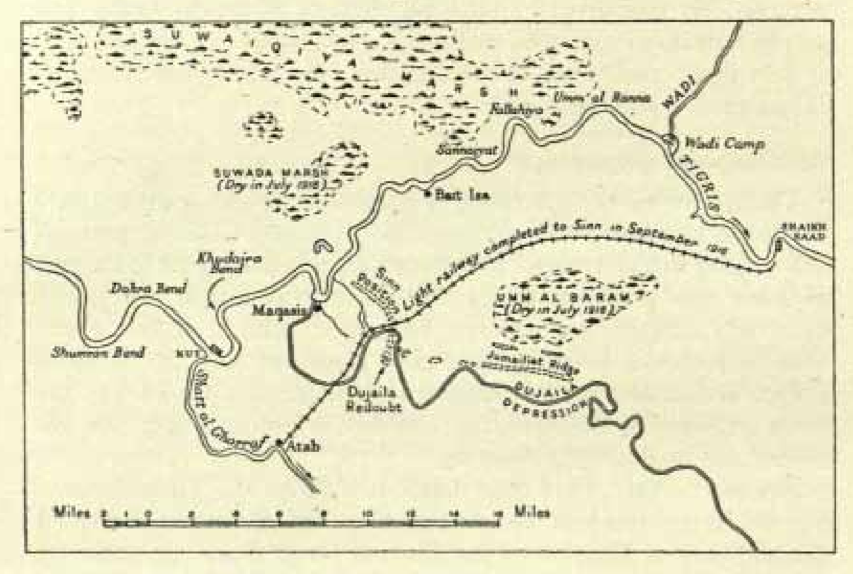


FIG. 58. *The country east of Kut al Imara, 1915–1917*

across the Tigris was 5 miles in rear of the main position, so that the troops on one bank could not easily reinforce those on the other, while the general reserve at the bridge was too far back. A strong demonstration against the Turkish right on 27 September having caused the Turks to reinforce that wing south of the river, Townshend transferred almost his whole force to the left bank during the night, and by a wide turning-movement enveloped and crushed the Turkish left before it could be reinforced. The Turks lost about 4,000 men, including 1,000 prisoners, but exhaustion and lack of water prevented the British from pressing their advantage, and the Turks abandoned Kut during the night. By the 29th the Turks were in full retreat pursued by the naval flotilla, and on the 30th *Shaitan* and *Comet* came within range of two Turkish steamers and forced them to abandon their barges. Low water prevented further pursuit by river, but the cavalry overtook the Turkish rearguard on 1 October about 40 miles above Kut, though they were too weak to interfere.

Battle of Ctesiphon. The Turks halted and manned an entrenched

position at Ctesiphon, and on 5 October the pursuing column, tied to the river for transport and supplies, disembarked at Aziziya, 61 miles by land and 102 miles by river from Kut. The Turks settled unmolested in their new position, while the British laboriously brought up supplies.

The battle of Ctesiphon was the first of a series of disasters to the British, the inevitable result of attempting a great task with inadequate means. Had the decision to seize Baghdad been taken before the advance to Kut, and had troops and transport been available to follow the routed Turks before the arrival of reinforcements, the result would have been different. Authority was received only on 23 October to advance on Baghdad, though in anticipation of it some forward concentration had begun. The battle that followed showed all the defects accumulated during the years of peace: shortage of equipment, lack of medical and other services, ignorance of the geography and of climatic conditions. These defects were accentuated because successful improvisation in the early months had prevailed against indifferent Turkish and Arab troops, and thus had bred over-confidence. When the British attacked on 22 November, with a wide turning-movement, all went well at first; but the gunboats could not properly support the attack because of the low water and high banks, and the Turkish forward position was only carried at the cost of over 4,000 casualties. Moreover, all the troops were engaged and there were no reserves. The Turkish counter-attack with greatly superior numbers of veteran Anatolian troops, which had just arrived in Mesopotamia, was defeated with heavy loss, but the difficulties of evacuating the wounded and of bringing up supplies and ammunition forced a withdrawal, first to Lajj, then to Aziziya, and thence under threat to Kut. The first backward movement was the signal for the Arabs along the Tigris to turn against the British, and for the next twelve months Arab marauders were a constant menace to communications. The Bani Lam were particularly troublesome right back to Ali Gharbi, sniping the supply vessels, raiding the river posts, and even breaking into the British lines by night and stealing arms and ammunition.

Disaster of Kut. The British reached Kut on 3 December, having been unmolested by the Turkish army during the retirement, except at Umm at Tubul, where the Turks stumbled on the British camp unawares during the night of 1/2 December and suffered a rough handling. But among the river-craft, which helped to cover the retirement and to clear the banks, there were heavy losses, mostly on

this occasion. They had nearly double as far to move as the infantry, and, because of the low water, they frequently ran aground. Thus *Shaitan*, *Comet*, the new gun-boat *Firefly*, 3 launches, 6 barges, and almost the whole bridging-train (a heterogeneous collection of craft, mainly native *danaks*) were lost.

Kut was invested by the Turks on 11 December, and fresh troops had to be brought to Mesopotamia for its relief. One Indian division from France was already on its way and the headquarters of the leading brigade had already reached Basra; but the last units of a second division only left France at the end of the month, and did not reach Iraq until the operations for relief had begun. Medical and supply units had to give priority to fighting units, many of which arrived without their full equipment, with the result that the force was hopelessly ill equipped from the outset. The river was now rising and the Turks could supply strong forces by river both for the investment of Kut and for holding their forward positions below the town. Appeals from General Townshend that he could only hold out until the first week of February also prevented methodical concentration. As troops reached Basra they were hurried up-river and thrown into battle. The Turkish covering forces were met and defeated at Shaikh Saad (6–8 Jan.) and at Wadi (13 Jan.), but they fell back to a strong position at Umm al Hanna, with their right resting on the Tigris and their left on the Suwaiqiya marsh. Heavy mud from the winter rains and bitter cold impeded operations. A desperate effort to break through to Kut was defeated with heavy loss at Umm al Hanna (20 Jan.), and it was then learnt, too late, that the Kut garrison could maintain themselves until April.

The British then reorganized, but only in March could they resume the offensive. A successful night march and wide turning-movement round the Turkish right flank at the Sinn position (battle of Dujaila, 8 Mar.) brought the troops within sight of Kut and victory, but tactical errors lost the battle, and though further desperate and costly efforts were made on both banks, the town surrendered to the Turks on 29 April after a siege of 143 days. Towards the end efforts were made to drop supplies to the beleaguered garrison, but there were too few aircraft. A last forlorn attempt to revictual the town was made by the Royal Navy. The river steamer *Julnar* was fitted with protective plating, cleared of woodwork, filled with 270 tons of stores, and manned by volunteers. The night was overcast and moonless, but the *Julnar* could only make 6 knots against the current, and was discovered. Riddled with machine-gun fire she passed through the

Turkish position at Sinn and traversed a hail of artillery fire at point blank range, but the vessel kept on undaunted until she struck a cable across the river opposite Maqasis fort, swung round, and ran aground. All attempts to refloat her under heavy fire failed, and her survivors were taken prisoner.[1]

With the fall of Kut the second campaign in Mesopotamia ended in disaster. The troops had fought throughout with the utmost gallantry, time after time advancing over the bare desert or through floods in fruitless frontal assaults on carefully prepared and strongly defended positions, suffering very heavy casualties in consequence. In England the Mesopotamia Commission took evidence and apportioned the blame; but the ultimate responsibility must rest with the civilian keeper of the purse and those who denied the funds for proper organization and intelligence in times of peace.

The Campaign of 1916–1917 to the Capture of Baghdad

During the summer of 1916 there were no large-scale operations, but much preparatory work and reorganization for the next campaign were undertaken. River-craft of all kinds became available, water communications were improved by dredging, the capacity of the port of Basra was greatly increased, and two sections of metre-gauge railway were laid. Meanwhile, as the level of the Tigris fell, the Turks encountered some difficulty in supplying their troops; partly for this reason, and partly because water was scarce in their forward position, they withdrew their right flank from the Sinn position below Kut. The summer was abnormally hot and there was much sickness;[2] cholera broke out in both armies in May, though it was quickly stamped out in the British.

The campaign of 1916–1917 was an unqualified success. On 28 August General Maude assumed command. The troops were at last equipped adequately for the tasks allotted them. But with the exception of punitive measures against Arab irregulars in the Nasiriya region, no forward move was undertaken until December. By this time the Tigris had begun to rise and the naval gunboats were again able to manœuvre and co-operate. On the night of 13 December

[1] Lieut. H. O. B. Firman, R.N., in command, and Lieut.-Commander C. H. Cowley, second in command, were both awarded the Victoria Cross posthumously, and the rest of the crew were also decorated.

[2] Official shade temperatures reached a maximum of 128° F. on three successive days, while in the single-fly tents of the First Corps headquarters, temperatures of over 140° were recorded.

the British advanced to the Shatt al Gharraf south of Kut, and secured the west bank. This river was at its lowest, dry in places and only 6 inches deep in others, but liable to rise almost any day, and it was therefore bridged. For the rest of the month and during January fighting was continuous as the British gradually closed in towards the Tigris, both in the Khudaira bend below Kut and in the Dahra bend above the town. By 19 January 1917 the Khudaira bend was cleared of Turks, though they had been heavily reinforced, and by 16 February the river bank in the Dahra bend was occupied after methodical trench warfare. The British now held the whole right bank of the Tigris from a point some 8 miles above Kut, but were still faced by a deep network of trenches at Sannaiyat, on the left bank about 15 miles below that town.

On 17 February General Maude launched his main attack. After heavy bombardment of the Sannaiyat position and fighting which lasted two days, the first two lines were captured and held against all counter-attacks. A second thrust in this quarter drew the Turkish reinforcements. On the night of the 23rd a small force ferried itself across the Tigris at the Shumran bend, 8 miles above Kut, establishing a bridgehead on the left bank, and the river, now rising to flood-levels and 300 yards wide, was bridged in 9 hours. By the 24th the whole Sannaiyat position was captured and the Turks were in full retreat. There was still only one squadron of British aircraft in Mesopotamia, and the cavalry were unable to operate far from the Tigris. Much of the infantry were still on the right bank of the river at Shumran or working their way past Kut on the north. The pursuit was therefore taken up by the five gunboats *Tarantula*, *Mantis*, *Moth*, *Gadfly*, and *Butterfly*,[1] which overtook the rearguard above Shumran, passed it under heavy fire, and, despite considerable damage in two ships, steamed on to engage the main body of the Turks, raking them with every gun, the high level of the river enabling the ships to fire over open sights 'into the brown'. The Turks were completely demoralized, abandoned their guns, and fled. Steaming on, the flotilla came up with the Turkish river boats, including the *Firefly* which had been lost during the retreat from Ctesiphon, and which was now set on fire, run ashore, and abandoned; she was boarded, the fire was extinguished, and she was refloated. Other vessels with troops and wounded, as well as many ammunition barges, were also abandoned and captured.

[1] These vessels had all become available since the battle of Ctesiphon, having been 'assembled' in the new shipyard at Basra.

This action by the Royal Navy, which was broken off at dusk, converted what had been an orderly retreat into a panic-stricken rout. Next morning the scene of action was littered with dead and wounded men and animals, weapons, wagons, and stores. Far up the river straggled small parties of men exhausted, starving, and harassed by marauding Arabs.

Close pursuit was impracticable for supply reasons, but by 6 March the forward British troops reached Ctesiphon without opposition. Two days later the Turks were attacked across the Diyala, the Tigris was bridged, and their position on the right bank was captured. Baghdad was taken at dawn of the 11th. Before the end of March British columns had pushed outwards to Falluja on the Euphrates, to Baquba on the Diyala, and to Mushahida station on the railway to Samarra. Early in April a Turkish counter-attack from Delli Abbas on the Diyala front was met and defeated, the Turks being driven behind the Jabal Hamrin, and on the 23rd, after two days' fighting, the British occupied Samarra and drove the Turks northwards up the Tigris to Tikrit. A last effort by the Turkish 13th Corps to restore their fortunes by an advance from the Jabal Hamrin down the Shatt al Adhaim was crushed at the end of the month, an action which left the Turkish forces widely separated and Baghdad secure at the beginning of the hot weather.

The Campaign of 1917–1918

The capture of Baghdad was the first important success by the Allies in the 1914–1918 war and had a resounding effect both on the Arab world and in Persia and Afghanistan, where German propaganda suffered a severe setback. General Maude viewed his operations as the centre of a co-ordinated attack converging on Turkey from Egypt, Iraq, and the Caucasus, but the British reverse in Palestine at Gaza in April and the effects of the Russian revolution, which led the Russian rank and file in June to 'down tools' and go home, shattered the prospect of further offensive for the time being and threw on him the burden of protecting Persia.

Defence of Baghdad. The British campaign of the winter of 1917–1918 was therefore primarily defensive in strategy, though it took the form of a tactical offensive whenever Turkish forces came within reach. There were three possible routes by which the Turks could converge on Baghdad: the Euphrates, the Tigris, and the old Assyrian route by Altun Kopru, Kirkuk, Kifri, and the Diyala. The last-mentioned was the most promising because supplies were fairly

plentiful and because its southern flank was protected by the Jabal Hamrin. With Baghdad as a base drawing local supplies from the fertile Euphrates region south of the Hindiya barrage, General Maude was strongly placed to strike at the Turkish advance along each of these three approaches in turn, for he could transfer troops rapidly from one wing to the other, while the Turks could not. On the Tigris above Baghdad the gunboats could only operate for a short distance, and there could be no naval co-operation on the Euphrates or Diyala, but there was no longer any shortage of artillery support or of land transport, and before long railways were built outwards from Baghdad to help maintain supplies (p. 580).

First Advance to Kirkuk. The winter campaign began with a successful attack against the Turkish position at Ramadi on the Euphrates (28 Sept.), where the Turkish force was surrounded and taken prisoner. Then General Maude struck the Turks at the Diyala gorge, an operation that brought a counter-move down the Tigris towards Samarra; this was crushed, the Turks were driven back past Daur, their starting-point, and after a short battle at Tikrit (5 Nov.) they were scattered northwards. These operations coincided with General Allenby's offensive in southern Palestine, where Gaza was captured on 7 November.

General Maude died of cholera on 18 November and was succeeded by General Marshall. The offensive on the Diyala front was renewed on 3 December and was supported by a small Cossack force on the British right flank; the Turks were driven back to Kifri, and no further operations were necessary until March. By then the Turks were again reinforcing their Iraqi front. At Khan Baghdadi on 26 March almost their whole force on the Euphrates was captured or destroyed, the remnant being pursued for 70 miles beyond Ana, where their ammunition dumps and base supplies were destroyed. A month later the Turkish left flank suffered another defeat, but the Turks barely awaited the attack; the British entered Kirkuk unopposed, though they came away from the town later.

Meanwhile the position in west and north-west Persia, where a Russian force had crossed the frontier and taken Ruwandiz, had deteriorated as the result of the Russian Revolution, and it was clear that a British force would have to be sent to the Caspian. The operations in Iraq opened the road by Khanaqin into Persia and enabled a force under General Dunsterville to occupy Enzeli on the Caspian before the autumn.

132. *H.M.S. Firefly, captured by the Turks on 1 December 1915, recaptured by the British on 26 February 1917*

133. *H.M.S. Moth on the Tigris during the pursuit to Baghdad in February 1917*



134. *Civil Airport at Baghdad*



135. *The King's Palace at Baghdad*

The Campaign of October 1918

The end came quickly. After Allenby's destruction of the Turkish armies in Palestine,[1] resulting in his capture of Damascus (30 Sept.), the only Turkish forces left in the field were in the Caucasus and in Iraq. The Turks were strongly entrenched in the Jabal Hamrin astride the Tigris at the Fat-ha gorge, while they still occupied Altun Kopru, with forward troops at Kirkuk. A turning-movement over the Jabal Hamrin forced the Turks out of their Fat-ha position on 24 October; two days later the cavalry, watered by mechanical transport in the steppe between the Little and Great Zabs, forded the Tigris at Hadhraniya, 14 miles north of Qala Sharqat, and cut the Turkish communications with Mosul; a relieving force from the north was driven back, and at dawn on the 30th the whole Turkish army on the Tigris surrendered. A British column was already on its way to occupy Mosul, which had been evacuated by the Turkish high command, and Altun Kopru had also been taken, when news of the armistice signed at Mudros between the British and the Turks was received on 31 October.

V. MODERN IRAQ

From Mandate to Independence, 1918–1932

DURING the war the government of the area occupied by the British forces, outside the zone of operations, was carried on by Civil Commissioners subordinate to the military authority but drawn from the Indian political service. At the head was Sir Percy Cox, known and dear to the tribal shaikhs as Cokkus, who first as consul and then as Resident in the Persian Gulf between 1904 and 1914, had been largely responsible for the successful British policy in the Gulf (p. 268); his assistant was Colonel A. T. Wilson, who had been political agent in Arabistan. Though always harassed by their prime duty of keeping the peace and organizing supplies for the army, these men and their assistant Political Officers in charge of the divisions (*liwas*, p. 386) of the country, at once set about re-creating a Civil Administration in the southern vilayets staffed partly by

[1] The two Indian divisions (3rd Lahore and 7th Meerut) which came to Mesopotamia from France for the relief of Kut (p. 280), and which captured Baghdad (p. 283), were transferred to Palestine in 1918 and took part in Allenby's last offensive. They were replaced by new divisions from India.

Indian and partly by Iraqi personnel, and thereby laid the foundations of the future Iraqi administration (Chapter VIII). After the armistice Colonel Wilson, as Acting Civil Commissioner, was faced by a nationalist agitation which from small beginnings gradually increased in violence and led to the Arab revolt of 1920.

Faisal and Iraqi Nationalism

The mainsprings of the Arab nationalist movement which led eventually to the establishment of the Iraqi kingdom lay outside Iraq, in the secret political societies of Syria which were active long before 1914 and in the successful Hejaz revolt of Husain, Sharif of Mecca, and his sons, Ali, Abdulla, Faisal and Zaid, during the War of 1914–1918. The main connexion between the Arabs of Iraq and these movements was that some of the Amir Faisal's best officers were Iraqi Arabs who deserted from the Turkish army in which they had been professional officers. The activities of the Syrian nationalists had received support from some individuals in Baghdad and Basra before 1914 and secret societies had existed there also (p. 267). But generally Arab nationalism in Iraq was a consequence of the great success attained by the movement led by Faisal in the Hejaz and the establishment between 1918 and 1920 of a virtually independent, though provisional, Arab State in central Syria.

At the time of the armistice in 1918 the inhabitants of Iraq had not established, by their own activity, any very great claim on the British for the establishment of their independence (p. 270). But the group of Iraqi officers in Faisal's service took the view that they were fighting in Syria for their own country's freedom, and in the winter of 1917–1918 while fighting before Maan in Transjordan they founded or re-formed a society, called Ahd al Iraq, the object of which was to secure independence for Iraq from foreign control and some connexion with an independent Syria, under the family of Sharif Husain. It was from this group that the men came, such as Yasin Pasha al Hashimi, Jafar Pasha al Askari, and Nuri as Said, who played a great part first in fomenting Iraqi nationalism after 1918, and later in the government of the Iraqi kingdom.

Allied Manifestos

Meanwhile a series of British and Allied pronouncements had been encouraging the notion of Iraqi independence. First, in the negotiations between Sir H. McMahon and Sharif Husain about the Hejaz

revolt (Oct. 1915), a guarded agreement had been made to recognize and support the independence of the Arabs of the Baghdad and Basra vilayets subject to the safeguard of British interests and to British control; Mosul vilayet was not explicitly excluded. Next General Maude, after entering Baghdad, promised in somewhat obscure terms freedom from 'alien institutions . . . that the Arab race may rise once more to greatness and renown', all, however, 'in collaboration with the political representatives of Great Britain'. In June 1918 a deputation of Faisal's officers was told that the British Government would recognize Arab independence in areas free before the war and in areas freed from Turkish rule by the action of the Arabs themselves during the war.

It was not, however, till the publication on 11 October 1918 in the Mesopotamian newspapers of President Wilson's Fourteen Points that the possibility of independence began to be taken seriously by the political public of Iraq. The Twelfth Point stated directly that nationalities under Turkish rule should be assured an undoubted security of life and unmolested opportunity of autonomous development. The publication of this was followed after the armistice with Turkey (30 Oct.) by an Anglo-French statement on 8 November that the two governments intended to establish in the subject areas of the Turkish Empire 'national governments and administrations drawing their authority from the free choice of indigenous populations . . . and to assure by . . . (Allied) support and effective aid the normal working of the governments and administrations which they have adopted of their own free will'. The Anglo-French statement marked the effective beginning of the nationalist ferment in Iraq, and particularly at Baghdad, where within a week the idea of an Arab Amir was being universally discussed and widely approved among the Moslems of the coffee-houses. But an attempt of the Civil Administration to sound public opinion throughout the country did not at this time produce any clear demand. Public opinion in the illiterate and tribally organized countryside and in provincial towns meant the views of the shaikhs, the Moslem clergy, and particularly the Shia mujtahids (p. 327), the landlords, and other notables. Many regions plumped for British direct control, others for various forms of Arab or Arabo-British government, the mujtahids of Najaf and Karbala for pure theocratic rule; only at Baghdad an assembly of Moslem notables, said to be non-representative, asked clearly for an Arab State headed by a Moslem king, chosen from the sons of Husain. The Jews in alarm asked for British citizenship.

Origins of the Mandate

All this was in 1918. It was only later that this nationalist tendency became an anti-British agitation. The cause of this change lay in the main outside Iraq in Syria, where the Allies and Faisal's Arabs became seriously estranged over the future status of Syria. A second and potent cause lay in the long period of delay, due to events in Europe and Turkey, in settling the future status of Iraq. The years between the armistice and the legal institution of the mandate in 1922 gave time for the belief to be established that the British were weak and had no settled policy. The root cause of the estrangement between Allies and Arabs was that while certain declarations of independence, however guarded, had been made to Husain and Faisal, the Allies (Great Britain, France, and Russia) had also made a secret agreement between themselves in 1916, known as the Sykes-Picot agreement, for the disposal of Ottoman provinces in a way that certainly conflicted with all the hopes entertained by the Arab followers of Faisal. This agreement, though virtually abandoned in all other respects, remained the basis of French claims to the political control of Syria. Hence when, after Faisal had established an Arab State in central Syria (October 1918), French opposition became gradually apparent, his Iraqi supporters began to take an interest in Iraqi affairs that increased as their hopes of Syrian independence waned. Propaganda embittered by Arab experiences in Syria, money, men, and arms began to flow from Syria into Iraq. Paradoxically the main source of supply was the large subsidy paid by the British to Faisal during the period of provisional government in Syria (Oct. 1918–Aug. 1920). Another source of unfriendly agitation lay in the return to Iraq after the armistice of all those Arab officials and officers who had remained loyal to the Turks during the war; being of the effendi class their influence in politics at Baghdad was naturally considerable, their attitude was anti-British, and their interest lay in the immediate creation of an extensive Arab officialdom.

A fresh turn was given to the situation by the publication of the Covenant of the League of Nations which contained in Article XXII the notion of the 'mandate', designed to protect peoples 'not yet able to stand by themselves under the strenuous conditions of the modern world'. The definition ran as follows: 'Certain communities formerly belonging to the Turkish Empire have reached a stage of development where their existence as independent nations can be provisionally recognized, subject to the rendering of administrative advice and

assistance by a mandatory until such time as they are able to stand alone. The wishes of the communities must be a principal consideration in selecting the mandatory.'

While the ground was thus seemingly being prepared for a new form of protectorate which should yoke together Arab nationalism and European imperialism, the Arabs still in provisional control of central Syria began a series of raids on the British posts at Deir ez Zor (then reckoned part of Iraq), with the apparent object of staking a claim in Iraq. The withdrawal of British forces from Deir ez Zor and Abu Kemal was taken as a proof of weakness and the campaign of propaganda was intensified. At a Syrian congress held at Damascus in March 1920 Faisal was proclaimed King of Syria while another body composed of Faisal's Iraqi officers proclaimed Abdulla as Amir of Iraq. On 3 May it was officially announced that Great Britain had accepted the mandate for Iraq, and stress was laid on the fact that the object of a mandate was the development of independent institutions. The nationalists redoubled their efforts. Sunni and Shia formed a common front, and throughout the month of Ramadan (May 19–June 18) a series of special services called Mauluds in honour of the Prophet's birth were held in all the mosques in turn, at which political speeches were made and patriotic poetry recited. Thus the Iraqi population was worked up to great excitement. A self-appointed committee of delegates from Baghdad and Kadhimain approached the Acting Civil Commissioner to demand the formation of a 'constituent assembly' which should shape a national Arab government.

Once more distrust was increased by delay due to outside causes. The British Government could not authorize a pronouncement of its exact intentions before settlement with Turkey. Not till the end of Ramadan, when the propaganda of the Mauluds had done its work, was the Commissioner able to make a public declaration that a suitable and popular person, Sir Percy Cox, the former Civil Commissioner, was to return to Iraq as British Representative and establish as provisional bodies a Council of State with an Arab president and a General Elective Assembly, and that these bodies and persons were to prepare an organic law as the permanent basis of an Iraqi state, all within the framework of the mandate. Had this announcement been made three months earlier there should have been no difficulty in accomplishing the change of regime peaceably, with the support of all moderate elements, if necessary, against the extreme nationalists who worked to drive the British out of the country. By June, however,

the extremists had decided that 'as between nations liberty is taken not given'.

The Arab Revolt

The last negotiations with the delegates were rudely interrupted by the outbreak of a violent tribal rebellion which spread rapidly and alarmed the Baghdadi notables and effendis almost as much as it did the British administration. This Arab revolt of 1920 was characteristic of Mesopotamian tribal revolts before or after, and is described here as an example of the difficulties of government in Iraq. The Arab revolt of 1920 was dangerous for two main reasons: first that it was a tribal movement backed by religious and political fanaticism, liable to spread rapidly after local successes, and second that the mobile military forces available to the administration for immediate action were very few in number. Out of a nominal force of 47,000 combatant troops only 3,000 Indian and 500 British were ready for action as a mobile force when trouble started. The remainder were either fixed to local guard duties over lines of communication (2,000 miles), dumps, refugee and prisoner-of-war camps, or else were sick or absent in the hot-weather camp near Karind in Persia. The presence at the latter of a large party of officers' wives and children was an added responsibility and fetter.

It is thus remarkable that the main insurrection was confined to two tribal areas, the so-called 'Middle Euphrates' sector[1] from Musaiyib and the Hindiya barrage to Samawa and Al Khidhr, and the lower Diyala from Shahraban to Baquba. There were local risings at a few points in Kurdistan and some sporadic movement along the Euphrates between Falluja and Hit. But the Tigris tribes from Baghdad to Basra and the tribes of the lower Euphrates around Nasiriya gave no serious trouble, nor did the desert beduin. This localization of the rebellion was due to the outstanding courage and force of character of the divisional Political Officers who, with no support save their Arab policemen or levies, remained firm in their offices or toured their districts under the shadow of assassination. Some were murdered, as Colonel Leachman (p. 270), who by his personal prestige and courage kept the peace for two months above Falluja, a feat as great as any done during the War by the better known Lawrence. But all, whether finally successful in keeping the

[1] This term is quite incorrect geographically, but is in common usage to denote this tribal area. The Middle Euphrates proper extends upstream from Hit to the beginning of the Euphrates gorge in Turkey.

peace or not, gained vital time for the arrival of reinforcements. Against the influence of the Political Officers was that of the shaikhs. The British method of administration, unlike the Turkish, had strengthened the authority of the tribal chiefs by making them fully responsible for their own tribes and by always working through them as agents. The nationalist movement had a great appeal for the chiefs because, as they openly stated, the freedom of Iraq meant for them the freedom from all government; no police and no taxes.

Trouble was most serious in the Diwaniya and Hilla divisions, within the focus of Karbala and Najaf, where the Turks had never been masters and where British troops had been seen least during the war. The influence of certain of the Shia mujtahids in fermenting the rebellion was considerable. The first outbreak was at Rumaitha over a small matter, within a tribe, the Bani Huchaim, which had suffered long from political and economic disorders. The lands of two tribal sections, Sufran and Barkat, below Samawa had gone out of cultivation owing to changes in the river and the tribesmen were living by plunder and raiding their neighbours. Military action had been taken recently (in May) against them, and no final settlement made. Hence when one section of the Bani Huchaim, instigated by the Mujtahids of Karbala and Najaf, rescued an imprisoned shaikh from the sarai at Samawa, there was a general rising of other sections, who cut the railway and besieged both Samawa and Rumaitha. When immediate relief measures failed the rising spread northward to the Fatla and the Bani Hasan. Kifl was seized (20 July) and Kufa was besieged, and when three companies of the Manchester Regiment set out to the rescue from Hilla they were routed with heavy losses. The garrisons at Musaiyib and the barrage were then withdrawn, and by the end of July the whole country west of the Hilla channel was in arms. But the British forces at Diwaniya withdrew successfully along the railway northward to Hilla taking their stock and gear in an immense railway train about a mile long. The success of the Arabs so far owed much to the presence of trained military officers from Syria and Turkey, and much also to the weakness in numbers and training of the British forces. But after the concentration at Hilla the tide turned. By 12 August the Hindiya barrage was reoccupied, and by the end of August the British controlled the canal system and were in a position to prevent the spread of anarchy.

The Diyala rising which followed that of the middle Euphrates caused great alarm because it cut communications with Persia, but it was not so serious. The tribes lacked trained officers and their

risings were ill co-ordinated. Trouble began when the small Karkhiya tribe cut the railway (9 Aug.) near Baquba. The garrison at Baquba was hurriedly withdrawn (12 Aug.), and the same day townsfolk and tribesmen together murdered the administrative staff at Shahraban.

From Shahraban trouble spread to Kifri in the Kirkuk province of southern Kurdistan. The Kurds, though they had no fellow feeling with the Arab nationalists, were as ever opposed to all government. But they had been chastised effectively after a rising in 1919 and the chief trouble-maker, Shaikh Mahmud, was not in the country (p. 308). In the Erbil province the local levies at Ruwandiz and Koi Sanjaq were withdrawn to Erbil. There they were overawed by the local chiefs and tribesmen, but the Political Officers stood firm and the chiefs proved reasonable. They, like other Kurds, simply demanded an assurance that Mosul vilayet would not be returned to Turkey nor placed under direct Arab administration. The most serious rising was that of the Surchi Kurds around Aqra; but they made the mistake of attacking a camp of Assyrian refugees who repelled them with very heavy losses. The Sulaimaniya region was kept in hand without troops by the forceful personality of its remarkable Political Officer Major Soane and his assistants.

By mid-October the situation had been everywhere restored, the insurgents defeated, and the security of communications made good by a system of blockhouses at every important centre. The fury of the rebellion subsided, and necessary punishments were carried out. When Sir Percy Cox arrived as High Commissioner it was possible for a fresh start to be made in setting up the new mandatory regime with the help of the moderate elements.

The New Constitution

The period of civil administration under British military control ended, and the establishment of the Iraqi State and Constitution began, with the arrival of Sir Percy Cox in October 1920 as High Commissioner of the mandatory regime. He immediately established a Council of State such as had been promised in June, consisting of a President, nine departmental ministers, and nine ministers without portfolio; the latter included a number of tribal shaikhs, a fact which greatly assisted in the pacification of the country. The next step was to appoint Arab officials or *mutasarrifs* to the *liwas* (divisions or provinces) of the country, with former Political Officers to advise them. The old Turkish electoral law was revised by the

Council of State to enable elections to be held for the establishment of a Constituent Assembly (also promised in June) which should enact the 'Organic Law' which was to be the basic constitution of Iraq. It needed considerable pressure from the High Commissioner before a provision was included for effective tribal representation. The Constituent Assembly of 100 members, 80 from the towns and villages, 20 from the tribes, was not in fact elected and in being till March 1924. Meanwhile, in March 1921, at a conference held at Cairo by Winston Churchill as Colonial Secretary, it was decided to create an hereditary kingship of Iraq and to offer it to Faisal, who after the Syrian fiasco had retired to Mecca. This proposal had the backing both of T. E. Lawrence 'of Arabia' who knew little about Iraq, and of Gertrude Bell, who as former Oriental Secretary to the Civil Commissioners at Baghdad knew the country and people well. But the first official recommendation of Faisal for such a position had come in August 1920 from the Acting Civil Commissioner, the much criticized Colonel Wilson, whose view was that 'Faisal alone of all Arabian potentates has any idea of the practical difficulties of running a civilized government on Arab lines'.

The Council of State accepted Faisal as King unanimously with the proviso that his government 'shall be a constitutional, representative and democratic government limited by law'. That the popular will might be consulted in some form a survey of opinion was made among representative bodies of local communities and among the tribes. Except for the Kurdish districts of Erbil, Sulaimaniya, and Ruwandiz, opinion, such as it was, was solid in Faisal's favour (p. 308).

The formation of the State was completed in 1924 when the Constituent Assembly adopted without any serious amendment the Organic Law, the real constitution of Iraq, which established legislative, judicial and administrative organs to replace the provisional Council of State and Constituent Assembly (Chapter VIII). The first elected Parliament met in July 1925, five years after the outbreak of the Arab rebellion. In the interim the country was governed by the King and Council of State under the advice of the High Commissioner.

The Anglo-Iraqi Treaty

The nationalists were not quietened by the establishment of an Arab government under British tutelage. From the beginning the term 'mandate' gave great offence to nationalist leaders. It was taken in the sense of 'command' instead of 'trusteeship', although blameless

Arabic words were chosen for its official translation (*intidab* or 'selection', and *daulat muntadiba*, 'the government selected'). In Syria they saw that France as mandatory held her rights from a third party—the League of Nations—and instituted such form of government as suited French interests and was acceptable to the League. Hence, jealous for the sovereignty of Iraq, and the acceleration of final independence, they wished to substitute a freely negotiated treaty with Great Britain for a mandatory instrument which they could not control. This policy suited the British Government, which was at this time under continual pressure from popular opinion in England to reduce British commitments in Iraq. During 1922 a treaty was negotiated amid much nationalist agitation and accepted by the Council of State with the condition that it should be confirmed by the forthcoming Constituent Assembly. This delayed the full operation of the treaty till 1924. The Constituent Assembly discussed the treaty for ten weeks in the hope of gaining favourable amendments by bargaining, but eventually accepted it when the British Government (of Mr. Ramsay Macdonald) lost patience with the delay. The Constituent Assembly added a rider to the effect that the treaty imposed financial burdens too heavy for Iraq and that the Assembly relied upon the honour of the British Government to amend them with all possible speed. The League of Nations Council accepted (Sept. 1924) the general substitution of a treaty for a mandatory instrument but attached certain conditions. In particular Britain was to be responsible for Iraq's fulfilment of the treaty's terms towards other League members, to make annual reports of progress to the League, and not to modify the treaty without the League's consent. Thus the mandatory framework was maintained.

The treaty in fact established a mandatory regime. By it Great Britain maintained a High Commissioner and consul-general with necessary staff, who provided Iraq at the request of the king with 'such advice and assistance as may be required during the period of the present treaty, without prejudice to her national sovereignty'. This advice was to be taken in domestic and foreign affairs, and in financial questions for as long as Iraq was under financial obligation to Great Britain. Iraq should have its own foreign representatives, approved by Great Britain, at London and in some other capitals; elsewhere Iraqis were to be under the protection of Great Britain. Differences of interpretation were to be referred to the International Court of The Hague, and modifications to the League of Nations. No economic discrimination was to be allowed against States Members

of the League, nor against States to which Britain had agreed by treaty to grant similar rights. This latter clause covered the U.S.A. interests in oil (p. 493). The treaty was to last for four years till July 1928, though originally planned for twenty years. But on the insistence of the League when the Mosul vilayet was awarded to Iraq in 1925, the mandatory period was extended for another twenty-five years or until the entry of Iraq into the League (pp. 310–11).

Annexed to the treaty were four subsidiary agreements which particularly aroused the criticism of the extreme nationalists. The first gave a schedule of eighteen administrative departments to which the Iraq government must appoint British officials as advisers or inspectors. Salaries were on a generous scale varying from about £60 a month to a maximum in the highest posts of £250, and contracts were for periods up to ten years.

Next by a Military Agreement the Iraqis were to be made responsible for internal order and defence of the realm as soon as possible. British forces in Iraq were to be progressively reduced to nil by 1928. The Iraqis were not to receive British help if they neglected recommendations of the High Commissioner about army movements or if they caused trouble by disregarding his advice. In the event of joint action the commander was to be British. Iraq was to spend 25 per cent. of its income on the armed forces.

The third agreement was judicial and provided for possible safeguards of the interests of foreigners made necessary by the abolition of capitulations. This meant the establishment of a certain number of British judges and the acceptance of certain forms of procedure for cases affecting foreigners. The fourth agreement was financial. Iraq was to pay the cost of administration, including the maintenance of the British Residency, and to meet all payments on her share of the Ottoman Public Debt (p. 485). The agreement also dealt with the arrangements to be made and the price to be paid by Iraq for the acquisition of the road, rail, telegraphic, and port facilities built by the British during the military occupation. The price was originally based on war-time costs, but eventually Iraq secured them at a bargain figure (pp. 508, 582).

The Working of the Mandate

The mandatory system depended in practice upon two factors: first British military help, and second the relative subordination of the advisers to the High Commissioner and the Iraqi Government. At no time were the advisers executive, though there were at first

a large number of British executive officials in most departments of the administration. In the period before the 1922 treaty, advisers were responsible to the High Commissioner who had supreme control. After the treaty they became employees of and responsible to the Iraqi Government, but, in addition to their duty towards Iraq of assisting development and maintaining enlightened government, it was also their duty to provide the High Commissioner with advance information about all measures of the Iraqi Government, and also to safeguard the financial interests of Britain and of foreigners.

In 1930, when Britain decided to end the mandate, the Iraqi Government was left fairly free to dismiss British officials, and instructions were issued to officials that an increasing share of responsibility for administration should be assumed by Iraqi ministers and officials, and that as far as possible the real as well as the ostensible control of affairs should be left in their hands.

This gradual transference of authority was accomplished by the reduction of the number of British officials, though the more senior tended to be retained. The following table of British and Indian staff in the Ministry of Finance, a key department, illustrates the policy.

Gazetted officials	*1920*	*1925*	*1930*
British	9	8	4
Indian	10	2	0
Non-gazetted officials			
British	1	0	0
Indian	66	4	0
Total	86	14	4

The shift was made even more rapidly in the Education Department. By 1922 the executive staff was entirely Iraqi, and after 1923 no administrative order was issued by a British official.

Complementary to these changes was the continual reduction in the British military forces. This was accomplished largely by the transference of the responsibility for defence and assistance in maintaining internal order from the Army to the Air Force.

Year	*British and Indian Army*	*Royal Air Force*	*Iraqi Levies*
1921	17 Battalions 13 Batteries 4 Coys. Sappers and Miners 3 Armoured car coys.	6 Squadrons (8 in 1922)	4 Cavalry Regiments 1 Pack battery 2 Battalions infantry 3 M.G. Coys.
1930	Nil	4 Squadrons 1 Armoured car coy.	2 Battalions

In the Iraqi Police force British officers were reduced from 22 in 1921 to 9 by the end of 1931, whereas Iraqi officers increased from 2 to 59 in the same period.

The Iraqi nationalists having obtained the first treaty in place of the direct mandate were as usual not satisfied. The main controversies were over the financial agreements, which were said to be unduly burdensome, the military agreement which severely limited Iraqi sovereignty, and the respective share in administration of the Iraqi ministers and their advisers; the real power according to the nationalists was all in British hands. These grievances contributed to steady growth of anti-British sentiment in 'political circles', i.e. among the government officials, teachers, students, lawyers, professional soldiers, and the frequenters of the coffee-houses of Baghdad.

Termination of the Mandate

The first concession gained by the nationalists was that, when in 1926 the Anglo-Iraqi treaty was extended for another twenty-five years, Britain agreed at four-yearly intervals to consider whether it was possible to recommend Iraq for membership of the League of Nations, and thereby to extinguish the extension. A modification of the treaty itself negotiated in 1927 came to nothing, but in September 1929 the Government of Mr. Ramsay Macdonald agreed to recommend Iraq for League membership in 1932. In preparation a new treaty was drawn up in 1930 to regulate future relations between Iraq and Britain, coming into force upon the entry of Iraq into the League. It included a reciprocal diplomatic and defensive alliance of twenty-five years. Each party agreed not to adopt a policy inconsistent with the alliance, and 'the aid of the King of Iraq in the event of war or the imminent menace of war' was to 'consist in furnishing to his Britannic Majesty on Iraqi territory all facilities and assistance in his power including the use of railways, rivers, ports, aerodromes, and means of communication'. In time of peace Britain was to have only sites for air bases at or near Basra and west of the Euphrates. All responsibilities of Britain under the earlier treaties and agreements were terminated. In an annexure to the treaty it was stipulated that there should be the closest collaboration with Britain in the training and supply of the Iraqi armed forces, and that Britain should have the right of transit for military forces and supplies through Iraq at all times and that H.M. ships should have the use of the Shatt al Arab on giving prior notice of visits to Iraqi ports. A separate

financial agreement was added to the treaty by which the transfer of the railways and of the port of Basra to Iraq was effected on much more generous terms than had been proposed in 1922 (p. 295). By an exchange of notes at the time of the treaty the Iraqi Government undertook normally to engage British subjects when in need of the services of foreign officials, and also admitted the validity of existing contracts with British officials. Thus Great Britain surrendered every legal and contractual form of control over the internal administration of Iraq.

This latter was one of the main points criticized by the League Committee which examined the proposal to terminate the mandate. Great concern was expressed for the freedom of minorities and of religious opinion in an independent Iraq until a declaration was signed by Iraq which provided against discrimination in elections, appointments, religion, language, and the expression of public opinion. The judicial protection of foreigners was secured only by the Judicial Agreement of 1930, which abolished earlier privileges but guaranteed the employment of British legal experts in relevant posts. For ten years 'most favoured nation' treatment, subject to reciprocity, was to be extended in economic matters to States Members of the League. Under these guarantees, the Committee agreed with apparent reluctance that Iraq fulfilled four of five conditions for national independence, which were that it should (1) have a settled government and administration capable of maintaining essential services, (2) be capable of maintaining internal order, (3) have adequate financial resources to provide for normal administration, (4) possess laws and a judicial organization which could afford equal and regular justice to all. As for the fifth condition, that a country should be able to defend itself, Iraq was thought capable of doing this only by means of the British alliance, which itself, though regarded with some suspicion, 'did not explicitly infringe the independence of the new State'. Even so, the Committee would not have agreed to end the mandate but for a statement of the High Commissioner that should Iraq 'prove unworthy of the confidence placed in her, the moral responsibility must rest with His Majesty's Government'.

The Council accepted the Committee's report in January 1932 and in October Iraq became a full member of the League. The British High Commissioner was replaced by an ambassador, and relations between Iraq and Britain were thenceforth governed by the Treaty of 1930.

There was no serious clash of British and Iraqi interests till 1941, but the change of status did not improve the attitude of nationalist groups throughout the country towards Britain. This was due partly to the nature of Iraqi nationalism, irked by the limitation on sovereignty implied by the treaty and the presence of British garrisons however small or remote, partly (after 1936) to the skilful fomentation of discontent by propaganda from an Italy and a Germany now re-entering the vista of empire, and above all to the political situation in Syria and Palestine. But the death of King Faisal in 1933 was the worst misfortune for Iraq. He had shown the most conspicuous skill and diplomacy in dealing both with foreign Powers and with the more intransigent sections of his own people, and despite his origins as a British nominee had identified himself in Iraqi eyes with the interests of his country without losing control over the extreme nationalists.

Independent Iraq from 1933 to 1943

After the death of King Faisal in 1933, worn out by the Assyrian crisis (p. 314), the apparent object of the Iraqi nationalists was attained: the government of Iraq was entirely in the hands of ministries elected or made solely by the people of Iraq. It was no longer held in check by a strong personality on the throne and was so free from British control or guidance that an increasingly anti-British policy in internal affairs and diplomacy was effectively pursued, despite the presence of the R.A.F. establishments allowed by the treaty. Yet this experience of self-government seems largely to have failed to satisfy the ambitions and interests of the various groups of politically self-conscious folk in Iraq—the richer townsmen, army officers, civil servants, religious and tribal leaders, students—with the exception perhaps of the diminishing band of elder statesmen, survivors of Ahd al Iraq and Faisal's officer-corps, who generally held the highest posts in the government. A certain dissatisfaction with the state of affairs spread through the body politic and culminated in the ill-timed, enthusiastic, yet almost aimless military coup against Great Britain in 1941.

No detailed political history can here be given, but the main features of political life are indicated in order to show the present internal condition of Iraq. This is the product of three general factors and a host of detailed political complexities. The younger generation was brought up by its elders in the tradition of the Arab revolt: rebellion against authority had become an end, almost an

ideal, instead of a means. The positive tradition of service to the State and the improvement of the common weal were lacking, and there was little to counterbalance the older oriental notion that political power was to be used solely for self-advancement. Hence there was a lack of serious interest in the detailed administration of the country and of its development, in which a promising beginning had been made. Instead, the more ambitious Arabs, impatient of the narrow confines of Iraq, were greatly agitated by the problems of the adjoining and less fortunate territories of Syria and Palestine. The struggle for Arab freedom against French, British, and Zionist interests in Syria and Palestine was the second formative factor of the period. The continued setbacks and disappointments of the Arabs in Syria and the position acquired by the Zionist organization in Palestine fostered the tradition of rebellion among the Arabs of Iraq. Every crisis over the border increased the fervour in Iraq. Hence Iraqi nationalism remained anti-British and tended to coincide with a Pan-Arab movement, aimed at freeing all Asiatic Arabs from European control. In particular, the new Iraqi army came to be regarded as the *Chosen Instrument* for this policy and began to acquire an unforseen and unhealthy influence in Iraqi politics. These agitations pointed the way to a future federation of Arab countries which may satisfy Arab ambitions better than the present subdivision into small states, but they also retarded the establishment of a sound administrative tradition within Iraq.

Political Methods and Crises

The third general factor, perhaps a corollary of the Pan-Arab tendency, was the weakness of the sense of national unity and the lack of solidarity between classes and groups. Hence arose the general failure of the parliamentary system in Iraq. It was not that governments were especially slothful. Much business was carried through both on paper and in practice. But neither Parliament nor ministries were truly representative of the country's many divisions. Office and power continued to be largely confined to a narrow circle of Sunni Moslem families, while Shia representatives, ministers, and officials were very few in proportion to the size of the Shia population. One reason for this was the deliberate refusal of the Shia element to take advantage of the secular educational facilities provided by the State and their consequent inability to compete on equal terms with the better educated Sunnis. The ruling clique also maintained that the powerful Shia families were essentially feudal in their outlook and

opposed to all forms of governmental control, and hence were a disruptive element in the State. The greatest weakness, however, was not the Sunni–Shia division but the perhaps inevitable fact that political offices, Parliament, and civil service were, as in Turkish days, the preserve of the town Arabs, who tended to ignore the basic agricultural needs and interests of a great part of the population.

These tendencies were shown by the serious tribal risings in 1935 of the middle Euphrates region from Diwaniya to Suq ash Shuyukh, which had been generally quiet since 1920 because of agricultural contentment. The policy of the newly independent government was little better than that of the Ottoman Pashas. The risings were repressed with the help of army and air forces, but the radical grievance, the lack of land and water, was not immediately redressed. Two local shaikhs of Diwaniya, Abdul Wahid and Shalan Atiya, showed an equal lack of wisdom in deliberately provoking tribal disturbances in concert with certain Baghdadi politicians for a political object—the overturning of the existing government—which they concealed from their tribesmen under the guise of genuine grievances. They then demonstrated their attitude towards the Ministry which they had helped to office by making a peaceful visit to Baghdad with eighty-six lorries full of armed tribesmen. They presented a characteristic petition which complained of the unequal division of power and representation, asked for the teaching of the Shia or Jafari rite in the law schools (p. 257) and the appointment of a Shia representative in the Court of Cassation, a reduction in the size of the civil service and a check on its corruption, the speeding up of agricultural settlement, and the equal distribution to all classes of the benefits of State institutions. Little was done to benefit the tribesmen at this time, and the shaikhs continued to exploit the method of tribal revolt during the political crises of 1936 and 1937.

Politics absorb the interests of educated Iraqis. Satirists say that despite the numbers of lawyers there used to be a shortage of advocates because the successful men were all engaged in political careers. The lack of a modern literature is explained similarly by the absorption of most creative talent in political journalism. Even the professors of Baghdad colleges are said only to know the classical literature. In the absence of solid political parties and of interest in local administration and social welfare, this political enthusiasm lacks both roots and fruits. Its main product is the *effendi*, the town-bred official who dislikes or despises the countrymen whose affairs he

administers without sympathy or understanding. As for the country folk and those townsmen who are interested in them, they suffer from another discontent. The economics of Iraqi agriculture (p. 442) are still based on the land reforms of Midhat Pasha and the preceding feudalism. The land is mostly owned by rich townsmen and tribal chiefs, and the peasant is a precarious tenant.

In such a State the parliamentary system easily became a mere machine for maintaining a coterie of professional politicians in power, whereas the number of experienced statesmen is only too small. The weakness again lay in the absence of large and solid political parties and hence of a genuine Opposition. Those out of power continually complained that the Government repressed all forms of personal liberty and the freedom of the press, but were up to the same tricks as soon as a lucky combination restored them to office. Elections seem to have been held on a change of government in order to enable the new ministry to secure a large working majority and to get rid of hostile ex-ministers and representatives. The Government has always been able to control elections through the provincial officials and to secure the return of its own nominees, amongst whom a proportion of opposition candidates were included to maintain democratic decencies. The frequent changes of ministry were a weakness, though it is true that changes were often only a reshuffle. Ministries were short-lived, but ministers were seldom out of office. Twenty-one cabinets which held office between 1921 and 1936 were recruited from a group of about forty men. A more serious fault was the issuing of grandiose programmes of national development which were left unfulfilled: there was indeed little to chose between the programmes of rival politicians, who adopted each other's measures at will. The administration suffered from the prevailing nepotism; the civil service was too much at the mercy of politicians who when they came to power sought to find places for their relations and dependents, and did not hesitate to order wholesale dismissals. It is symptomatic of the immaturity of Iraqi politics that political murder for the gesture's sake has persisted since the Arab revolt of 1920. Hence Iraq has been described as a democracy without parties and a dictatorship without a leader.

The Army in Politics

Such was the general ground of discontent and disunity from which sprang the first intervention in politics of the army and particularly of the officer-corps. This was the *coup d'état* in 1936 of the Kurdish

general Bekr Sidqi, which began with the assassination of Jafar al Askari, one of the most notable of the governing clique, and ended with that of Bekr himself in 1937. Bekr did not take office in person but worked through a nominee cabinet, under Hikmet Sulaiman. A Party of National Reform was founded which drew much of its inspiration from the new Turkey of Kemal Ataturk and made proposals for the radical modernization of Iraq. Some regarded Bekr as the Kemal of Iraq, but the government of Hikmet showed itself no 'stronger' than its predecessors and did not survive Bekr's death. Power reverted to the elder statesmen such as Jamil Madfai, Rashid Ali al Gailani, and Nuri as Said, turn in turn. But the moral had been established that the benefits of government must be evenly and widely distributed, and that the towns could neglect the countryside only at their peril. Two large schemes of public works, a Five Year Plan and a Four Year Plan, which had been first drafted in 1935, were put in hand (p. 483). These schemes, which were financed by the oil royalties, now yielding large sums, included the Kut barrage, which should greatly improve conditions for the tribes along the Gharraf channel. Efforts were made to dissociate the army from politics, but at the same time a conscription law, which was not likely to diminish military influence, was retained and amended (1938). This controversial measure, first enacted in 1934, was dear to most Iraqi nationalists because they hoped thereby to secure their Chosen Instrument at a cheap rate. The tribes are traditionally averse from any form of conscription, and the Shias dislike the subjection of their sons to a predominantly Sunni organization. But the nationalists maintain that conscription unites rather than perpetuates the numerous internal divisions of the population.

The influence of the army in politics remained and increased, being particularly successful in overturning ministeries of which it disapproved and in preventing the punishment of political murders; it was said to be much influenced by Italian and German propagandists. After the outbreak of war in September 1939 Iraq broke off relations with Germany, but army influence prevented a similar rupture with Italy in 1940. The army seems to have filled the place left vacant in politics by the death of King Faisal. His son Ghazi was not merely lacking in experience through youth, but proved unworthy of his father by personal vices and, what was worse, did not gain strength of character as he grew up. The prestige of the Hashimite house, never very great in Iraq, steadily declined, and after family scandals a bill was passed to provide a Private Council for the control of the

royal family. After Ghazi's death in a motor accident in 1939 he was succeeded by his infant son, who was represented by Ghazi's brother-in-law and cousin as regent, Abdul Ilah, a young man then aged 26. Iraq thus came to resemble a republic with the permanent army-commanders of a popular army holding increasing power behind a façade of cabinets.

Anti-Zionism

The Arab disturbances of 1936–1939 in Palestine and the scheme for the partition of Palestine[1] inflamed the Arab nationalists of Iraq, who gave every feasible assistance to their brothers in Palestine both by diplomacy and occasionally by direct aid with arms and money. The religious authorities went so far as to proclaim a Jehad or Holy War for Palestine in 1938. The fear of Zionism caused anti-Jewish riots and isolated murders of Jews in Baghdad, from which the city had hitherto been free. It was not surprising that the bitterly anti-Zionist Mufti of Jerusalem came for refuge to Baghdad in 1939. The Pan-Arabs, nationalists, and army leaders soon made common cause, assisted by Italo-German propaganda and possibly money.

Anglo-Iraqi War of 1941

After the outbreak of war in September 1939 Iraq broke off relations with Germany. But 'Axis' influence was only of minor importance until the defeat of France, the decline of British power in the Mediterranean after the German conquest of Greece, and the arrival in Syria of an 'Axis' Disarmament Commission. In March 1941 a group of four colonels, known as the Golden Square, and the ex-premier Rashid Ali al Gailani, who had come to terms with the army group after the murder of his enemy Bekr Sidqi, overthrew the government of the Regent and Taha al Hashimi, an ineffective ex-general who as Premier had been compromising with all parties. The Regent fled to a British warship at Basra and was replaced by a more pliant relative. At first the new government declared its loyalty to the Anglo-Iraqi Treaty, but their 'Axis' connexions were well known and Britain countered by landing troops at Basra from India in accordance with the treaty provisions. Despite this the military opportunity looked fair to the Iraqis. By April a great part of the British army of Egypt was refitting after losing all its heavy equipment in Greece; all fully equipped battalions were required to hold the Tripolitanian frontier against the newly arrived German Afrika Korps. Others

[1] See *Geographical Handbook of Palestine and Transjordan*, B.R. 514, pp. 127 ff.

again were occupied in Abyssinia. Yet it was necessary to move quickly before hot weather prevented operations.

The Iraqi plan was to seize the British Air Base at Habbaniya and also to send sufficient forces to the south to oppose any advance northwards by the British troops landed at Basra. The first part of the plan failed outright. On the eve of 1 May Iraqi mechanized forces, including some 50 field-guns, moved from Baghdad to Habbaniya and surrounded the Air Base. The British Air Officer Commanding received an ultimatum declaring that if any aircraft left the ground the base would be bombarded. He decided to anticipate the attack and struck at dawn on 2 May with all his available aircraft, including training machines manned by pilots and gunners under training, and with the small garrison of airfield guards and the Assyrian and Kurdish Levies. After four days' fighting the Iraqis were driven back to Falluja. Meanwhile a small British motorized column was hastily collected in Palestine and dispatched across the desert by Rutba with the task of defeating the Iraqi forces and occupying Baghdad. Falluja, which controls the Euphrates bridge on this route to Baghdad, was taken on the 19th and then nearly lost when the Iraqis counter-attacked, but they were again driven out of the part of the town which they had occupied by a British counter-attack. This was the only effective operation carried out by the Iraqi command, and it is pertinent to note that the scheme was a literal application of a peace-time staff exercise devised by a British instructor of the Iraqi Staff College.

The second part of the Iraqi plan, the prevention of an advance from Basra, had been relatively successful. The destruction of the bridges on the railway between Ur and Samawa, and about Qurna on the Basra-Amara-Baghdad road, limited the British advance to Ur by the end of May, but apart from these demolitions there was little military opposition in the south.

The British advance continued from Falluja, though held up by demolitions and the cutting of bunds, and reached the outskirts of Baghdad on 29 May. Rashid Ali's Cabinet dissolved, the Ministers fled in panic to Persia, and control of the capital was taken over by a Committee of Public Safety composed of military and local officials. An armistice was concluded on 31 May, and the Regent re-entered Baghdad. The Chosen Instrument thus suffered an ignominious disaster at the hands of a far smaller force.

Apparently the movement was premature and there was no clear understanding with the Axis powers. German aid to the Iraqis

consisted in the dispatch of some fifty aircraft with a number of officers and technicians to airfields in northern Iraq. The aircraft made several raids on Habbaniya but were ultimately all destroyed, either in the air or on the ground. Also Herr Grobba, who had been German Minister in Baghdad up to 1939, returned to Iraq, where he seems to have endeavoured to conclude a treaty under the terms of which Iraq would have surrendered her oil-fields in exchange for Axis help to annul the Anglo-Iraqi Treaty and to secure the federation of Syria and Iraq into one independent State. But his failure to obtain adequate air support from Germany alienated the Golden Square.

Most Recent Trends

The constitutional regime was restored with the return to power of men such as Jamil Madfai Pasha and Nuri as Said—known as the Common Denominator of Iraqi politics—who, though acceptable to Britain, were still regarded as good Arabs in Iraq. The military failure, however, has been a blow to the self-confidence of the most lively members of the Iraqi State. The *coup* had been widely supported not so much out of hatred of the British as out of a desire to strike a blow for the Arab cause. Many who were well aware that they were stabbing their best friend in the back still joined in with enthusiasm, true to the tradition of Iraqi politics. The eventual declaration of war by the Iraqi Government on Germany was regarded with considerable cynicism after past events. But it is remarkable that some of the army leaders were sentenced to death by the Iraqi courts and the sentences were carried out. More importance was attached to the continuous negotiations for some form of Arab federation with the neighbouring Arab governments, amongst which that of Saudi Arabia perhaps holds the most interesting place. The excitement with which Iraqi politicians and journalists declaimed against the high-handed intervention of the French in the constitutional rights of the Lebanese Government in November 1943 suggests that the disappointed nationalists are now recovering their nerve. The firm support given to the Lebanon on this occasion by the British Government has probably gone far to soothe hitherto irreconcilable nationalists and Pan-Arabs in Iraq. The Palestinian problem is still of moment in Iraq, and Nuri as Said is credited with a special plan for its solution by the federation of Palestine with Syria.

Behind this political decor Iraq has filled a place of considerable strategic importance in the war since the invasion of Russia by

Germany. The Gulf ports and the roads and railways of Iraq and Persia became the main routes for the supply of the U.S.S.R., particularly when the northern sea route was hazardous. Also the presence of Allied forces in Syria and Iraq, and the existence of an open exit from the Mediterranean, has done much to enable Turkey to present a firm front to 'Axis' intrigues and to maintain a neutrality invaluable to the Allies. It is worth noting that this immense strategic advantage has been held by the Allies solely through their sea power, and also that the historical and geographical connexions between Basra and Bombay still hold good.

Minority Problems

Kurdistan and Mosul, 1918–1943

At the armistice of 1918 British troops were beyond Qaiyara and had entered Kirkuk. Mosul town was freed from Turkish occupation by the vigorous action of General Marshall a few days later despite Turkish protests. The rest of the Mosul vilayet, including the Kurdish mountain valleys, was gradually occupied by British forces or Political Officers. The complexity of the situation in this area soon discovered itself. Policy at London and Paris was even less certain for Mosul than for the southern vilayets. It was not till January 1920 that the French claim to the general control of Mosul vilayet under the Sykes-Picot agreement was waived in favour of England. The Turks themselves, though reconciled to the loss of the Arab vilayets, had no intention of losing Mosul with its Kurdish majority, its Turkoman minority, and its oil. Abetted by certain American business interests they contrived to delay a decision for nearly eight years. They intrigued locally by supporting rebellious Kurds and by minor military intervention, and in Europe by diplomatic representations. The success of the Turkish nationalists in driving the Greeks out of western Anatolia and frightening the French from Cilicia encouraged the army commanders at Diyarbekir to hope for similar success in Mosul.

Shaikh Mahmud. The crucial problem concerned not the Turkish claims but the Kurds and their claim to autonomy, wild people in a wild country whom no one had ever tamed outside the towns. The abortive peace treaty of Sèvres (1920) had proposed the creation of an autonomous state of Kurdistan, including the Kurds of Turkey and Iraq but excluding those of Persia. After the Turkish nationalists had made it clear that they intended to retain as Turkish subjects

at least those Kurds who lived outside Mosul vilayet, British policy still toyed with the notion of creating a small state of southern Kurdistan out of the Mosul Kurds, and from the beginning the administration was committed to a policy of special treatment for Kurdish areas in accordance with the Anglo-French Declaration of 1918. Such doctrines naturally excited the wild Kurds and wilder chiefs, particularly in the remote regions and traditional centres of Kurdish independence such as Amadia, Ruwandiz, and Sulaimaniya, the main centre of the autonomists. For twelve years (1919–1931) intrigues and outbreaks centred on Shaikh Mahmud of Sulaimaniya, the most notable of a number of Kurdish shaikhs and aghas who were all impatient of any government save their own. The strength of these chiefs lay in their ability to raise revenues by terrorizing their villagers and to maintain armed bands with the funds raised. The tribesmen themselves, whether shepherds or cultivators, though easily excited by political or religious talk to acts of violence, were worn out by the destitution and poverty brought by the war and anxious for settled government and freedom from the excessive tyranny of their chiefs. If the Turkish claim to Mosul had not been left open for so many years the history of Iraqi Kurdistan would have been less troubled by local rebellion.

Mahmud, who had invited the British to Sulaimaniya before the armistice, was for a time recognized not only as governor of his district but as leader of any Kurdish tribe between the Great Zab and the Diyala which freely accepted him. Temporarily he had a great following, but his misgovernment soon made it necessary to curb his authority by providing Sulaimaniya and other centres with forceful Political Officers. Mahmud retaliated by collecting a troop of Kurds from Persia, seizing Sulaimaniya, and declaring himself ruler of all Kurdistan (May 1919). Military action soon put an end to this kingdom. Mahmud was tried and sentenced to death, the sentence being changed to banishment. Similar rebellions, usually more local in scope, continued to trouble the remoter districts.

In 1921 Sulaimaniya province rejected union with the new mandatory state of Iraq and refused to vote in the referendum for Faisal, while the Kurds of Erbil and Ruwandiz voted against Faisal, though accepting union with Iraq. A special provisional administration was devised for these areas, but British authority was weakened by the great reduction of military forces, and the substitution of R.A.F. squadrons, some armoured car companies and Levies raised in Iraq, for the regular army of occupation. It was the opportunity of the Turks, who

in the summer of 1922 stirred up the Hamawand, Jabbari, and Pizhder tribes, sent small bodies of troops to Ruwandiz, Rania, and Koi Sanjaq, and created a Turkish Committee at Kirkuk. The Levies and the R.A.F. soon restored the situation, and Shaikh Mahmud was brought back from exile in Kuwait (Sept. 1922) and reinstated at Sulaimaniya, in the hope that he would rally Kurdish national sentiment to the Anglo-Iraqi point of view. Instead, he intrigued with the Turks, declared himself ruler of all Kurdish areas in Iraq, and created a body of ministers and a council packed with wild tribal chiefs from both sides of the border. But he offended many of his followers, and military action in 1923 by Levies and R.A.F. recovered Ruwandiz from the Turks and drove Mahmud temporarily out of Sulaimaniya. He was allowed to return, but his authority was restricted to the core of the Sulaimaniya division, excluding the outlying districts of Rania, Qala Dizeh, Chemchemal, Halabja, and Qaradagh, in all of which direct administration was established. He was soon intriguing again and planning a grand attack on Kirkuk in 1924. But a general defection of followers and vigorous air action made him withdraw finally from Sulaimaniya (May 1924), by which time its population had dwindled from 20,000 to 700 persons.

The misgovernment of the Shaikh and the persistent promises of some form of local autonomy by the High Commissioner reconciled the local population to the gradual incorporation of the region in the framework of the Iraqi administration. A similar train of events led to the assimilation of the Ruwandiz area with a local notable as governor, which had been much disturbed by Turkish intrigues. Mahmud was, however, left in control of a small frontier region around the village of Penjwin, whence he was ejected in 1927, being allowed to retain his estates provided that he resided across the Persian frontier and did not intervene in politics. For three years he kept the peace, but the disturbances attending the ending of the mandate were too much for him, and in the autumn of 1930 he attempted another unsuccessful rising. He never held more than the localities of Penjwin and Surdash, though his raids reached into the Kifri plain. On submission (May 1931) he was sent to live in southern Iraq, whence with 300 followers he made his latest unsuccessful attempt to re-establish himself in Kurdistan during the crisis of May 1941.

Shaikh Ahmad. The rebellion of Shaikh Ahmad of Barzan in 1931–1932 was equally characteristic of Kurdish shaikhs. Ahmad had given much trouble at the time of Mahmud's first rising in 1919

when he joined hands with his deadly enemies, the Surchi Kurds, to murder some Political Officers. In 1928 a local mulla in Ahmad's service announced that the Shaikh was God and he himself his prophet. The mulla toured the country preaching his faith, persuading the village muezzins to substitute his name and Ahmad's for those of Mohammed and Allah in the daily call to prayer. Finally he was murdered by Ahmad's more orthodox brother Sadiq, and Ahmad's grievances against the Government at this time led to no outburst. In 1931 Ahmad announced his conversion to Christianity, and ordered all his tribesmen to kill pigs and eat pork as an initiation to the new faith. This caused a local inter-tribal war in the adjoining Baradost area, and Ahmad had the best of it. Iraqi forces were sent to seize Barzan village and to restore order, but a sharp reverse was inflicted on them in October and a serious defeat in March 1932 culminated in rout. Only vigorous action by R.A.F. planes discouraged the tribesmen and caused Shaikh Ahmad to cross the frontier into Turkey.

The Kurds as a whole, however, began to co-operate with the mandatory government after 1923, when by the Lausanne Treaty between Britain and Turkey the idea of a united Kurdish state was abandoned and the Turkish claim to the Mosul vilayet was apparently neglected. Kurds sat in the Constituent Assembly in 1924, and in 1925 Kurdish notables were regularly elected to the new Parliament for Erbil, Kirkuk, Mosul, and Sulaimaniya, while there were Kurds both in the Cabinet and the Senate. Reconciliation was furthered by the use of Kurdish, both in schools and for local official correspondence, and by the employment of a majority of Kurdish officials in Kurdish districts.

The League Commission and Turkey. After the Peace Treaty of Lausanne (1923) the Turks made one last attempt by diplomacy to recover the Mosul vilayet. The treaty had arranged that the frontier between Turkey and Iraq should be fixed by friendly arrangement within nine months and that if agreement failed, the dispute should be referred to the Council of the League of Nations. When in 1924 the unsettled dispute was thus referred to the League, the Turks sought not merely a delimitation of frontiers but the reopening of the whole issue, to which the British agreed. A Commission of Inquiry was sent out by the League to Iraq in 1925, after a provisional frontier line, known as the 'Brussels line', had been fixed for the interim; this corresponded fairly closely with the old frontier of the Mosul vilayet. The Commission soon discovered that the

British had not exaggerated the impossibility of holding a plebiscite in Kurdistan and the difficulty of discovering true local opinion even by secret inquiry. Tribesmen and peasants referred the Commission to their chiefs and landlords, who in turn were dominated by the fear of reprisals if they spoke for the losing side. The Commission's report rejected the Turkish claim mainly on economic and historical grounds, including the economic unity of the three vilayets and the fact that Mosul had for long periods been dependent on the Pashas of Baghdad (pp. 259 ff.). But the proposed award of Mosul to Iraq was made conditional on the protection by Britain of the local rights and usages of the Kurds, who, it was found, had no sympathy for Arab rule as such, and the prolongation of the mandate for twenty-five years. The frontier claimed by the British was rejected and a line closely approximating to the Brussels line recommended instead. This decision pleased the Turks but created a fresh problem, that of the Assyrian refugees. The British had claimed territory north of the old vilayet in order to include the valleys of the Assyrian refugees and to restore to them their old homes.

The Commission's report was adopted by the League Council, which was much influenced by the harsh measures adopted by the Turks towards their own rebellious Kurds in 1925, and though the Turks protested to the last they eventually accepted the inevitable; in 1926 a tripartite treaty was concluded between Great Britain, Iraq, and Turkey by which Turkey agreed to the Brussels line (with slight modifications) and the neutralization of the frontier. This friendly agreement, the Treaty of Ankara, was supplemented in 1937 by the Saadabad pact (p. 318). The contentious oil factor in all these negotiations is mentioned later, p. 493. The frontier is described on pp. 1 ff.

Iraqi Methods. The Kurdish problem was stirred up afresh when Britain proposed the termination of the mandate. The League was inundated by Kurdish petitions, mostly demanding an increased or a total amount of local autonomy, but occasionally complaining that the Iraqi Government did not fairly carry out the administrative measures made in 1925. More had in fact been promised in vague phrases than could be performed in fairness to the Iraqi State, and the League found it necessary to limit Kurdish claims to purely local matters affecting the use of languages, control of education, and the appointment of local officials. The Iraqi Government, which was made to offer guarantees in this respect (p. 298), has, while generally 'leaving well alone', consistently maintained that it is necessary for

the solidarity of the kingdom to employ some Kurds outside and some Arabs inside the Kurdish areas. The main contribution of the Kurds to the State has been within the army, where individual officers have acquired a position of considerable importance, as is shown by the career and *coup d'état* of the Kurdish general Bekr Sidqi (p. 303). The weakness in the Iraqi method of governing Kurdistan had been the almost exclusive use of force and the relative neglect of peaceful penetration. 'Pacification' by aerial bombing, though it may be cheap, is a cause of great suffering and bitterness, because even if there are no direct casualties, stored crops are destroyed and a period of starvation follows.

At the end of 1943 another autonomist revolt broke out in the Barzan area, led by a local mulla named Mustafa; once more the material cause seemed to be the neglect of Kurdish interests by the central government. Negotiations for settlement were still proceeding in the spring of 1944.

The Assyrians

In 1918 a British force (p. 284) operating in Persia encouraged the Assyrian (Nestorian) Christian mountaineers living in the Hakâri valleys mostly north of Mosul vilayet to rise against the Turks. The rebellion was unsuccessful and after dire massacres the Assyrian tribesmen retired to British protection in Persia and were transported thence to a refugee camp at Baquba near Baghdad. After the armistice the Turks refused to allow them to return to their native valleys and they remained to create a new minority problem in Iraq. A small part of their old country was within Iraq and accommodated a few thousands, but the majority of about 20,000 were settled temporarily on lands and in villages left desolate by the war in the Mosul vilayet, mostly around Zakho, Dohuk, and Mosul. The final British scheme was to gain from Turkey in the Mosul negotiations enough of the old Assyrian territory northwards to Julamerk and Neri[1] to establish the Assyrians as a compact body within a portion of their old homeland. This scheme failed when the League Council restricted the northern frontier of Iraq to the 'Brussels line' (p. 311).

Land Settlement. It thus became necessary to find permanent homes for the Assyrians, who had a very great claim on the gratitude of Great Britain as the 'smallest ally' during the war and as the most loyal of supporters during the mandatory period, whereas to the Iraqi Government they were but a set of unwanted refugees. By

[1] Turkish Çölemerik and Şemdinan.

1930, despite many difficulties over land ownership, all but 350 families had been settled as tenants in various localities of the Erbil and Mosul provinces, half on State lands and half on lands privately owned. Leases were reasonable, and the Iraqi Government was helpful in granting tax remissions until the settlements were well established. A scheme for settling the remaining Assyrians in the Baradost country was only held up by Shaikh Ahmad's rebellion (pp. 309–10). Land settlement itself was a fair success; the Assyrians proved good cultivators and peaceful neighbours, and were generally popular with their Kurdish landlords, though a small percentage made trouble and refused to pay taxes.

The Assyrians, however, were not content to be quietly settled in scattered villages. A large number had enlisted in the Levies and formed two of the smartest battalions. Becoming the favourites of their officers and the protégés of the British generally, they tended to assume an attitude of superiority towards the Arab and Kurdish inhabitants of Iraq, and identified themselves with the British as the conquering people. Such an attitude from mountaineering Christian tribesmen was intolerable to the Arab Moslem plainsmen, and also to the Kurds, who regarded the Assyrians simply as fellow brigands who were no better than themselves. Assyrian pride was increased by the unwonted prosperity which they enjoyed through employment in the Levies, on the Iraqi railways, and on the pipe-line. There were distressing incidents such as the Assyrian mutiny of 1924, when two companies of Levies ran amok in Kirkuk after a private quarrel and killed 50 Moslems, without any Assyrian being punished with death. The independent attitude affected a great part of the Assyrian colony which, under its young and inexperienced leader, the Mar Shimun, began to formulate nationalistic ideals. A common demand was for settlement in a compact block of territory and the grant of at least such rights of communal self-government as they had formerly enjoyed under the *millet* system of the Turkish Empire. By 1930 the former was certainly impossible without expropriation of existing landholders, and the latter was not only contrary to the general interests of the Iraqi Government, which aimed at making citizens of all its subjects, but would have been grossly unfair to the Kurds, who were given a good deal less than communal rights. It was also apparent that many of the Assyrian peasants were not anxious for such increases in the power of the Mar Shimun or of their tribal chiefs as the *millet* system would have made possible.

The termination of the mandate alarmed the Assyrians, who feared

for their safety when it was found that the new treaty made no provision for the protection of minorities. Various petitions were sent to the League of Nations renewing the nationalist demands, and also making an alternative request in October 1931 for settlement outside Iraq. Meanwhile the Iraqi Government was becoming less pliant towards the Assyrians, though ready to continue the policy of piecemeal land-settlement, and certain Baghdadi politicians were deliberately fomenting trouble between Kurds and Assyrians. The king, however, and most responsible ministers stood for a conciliatory policy. The situation was aggravated for the Assyrians by the proposed disbanding of the Levies, which would leave several thousands without means of support. Unfortunately the League Committee which was dealing with the Assyrian petitions could not report till after the termination of the mandate had been completed; otherwise conditions similar to those relative to Kurdish rights would probably have been explicitly imposed upon Iraq. The final conclusion of the League Committee took the view that the Iraqi policy of land settlement 'in homogeneous units so far as may be possible' should provide a sound solution of the problem, and explicitly rejected the Assyrian demand for administrative autonomy within Iraq.

The Massacre. A crisis arose in 1933, in the absence of King Faisal, that led to a disgraceful massacre, and made it difficult for the bulk of the Assyrians to remain permanently in Iraq. The Iraqi Government, which included some ministers who were anti-British in tone and regarded a blow at the Assyrians as a blow at Britain, demanded from the Mar Shimun, whom they detained in Baghdad, a written pledge renouncing among other things his claim to so-called temporal power. Yaku Ismail, his representative in Mosul, after negotiations with the local mutasarrif, promised to go to Baghdad for discussions with the Mar Shimun, but instead he led a body of 800 armed Assyrians across the Tigris into the Syrian Jazira. Apparently they misunderstood the Iraqi proposals and believed that the French were prepared to grant them lands in Syria, which they wished to inspect. Meanwhile the Iraqi army moved detachments to cover the Tigris crossings with a larger force in support. When the Assyrians decided to return a fortnight later they were challenged by a military post, which they attacked and destroyed; it is impossible to determine which side fired first. Later they were engaged by the main body of the Iraqi troops, over whom they expected an easy triumph. Instead they were routed and chased for a week through the countryside (4–11 Aug.). This was a great 'victory' for the Iraqi troops who for twelve years

had taken the Assyrians at their own estimation. Now they were wildly excited because they had broken the Assyrian reputation for invincibility.

It was these troops which found a body of 400 unarmed Assyrians gathered for protection at the police post of Simel, near Dohuk, and massacred them in cold blood. This was the worst event; including the victims of battle perhaps 600 Assyrians perished out of a population which now totalled about 25,000.[1] Afterwards, with the assistance of Kurdish tribesmen and Shammar beduin, the Iraqi soldiers sacked and destroyed 20 Assyrian villages and badly damaged another 20 out of a total of 64, but the tribesmen were not guilty of bloodshed. There seems little doubt that this massacre was, if not long premeditated, at least arranged by the local army officers, and that certain local civil officials must have connived at it; equally it is true that the Arab administration as a whole was not implicated. Care was taken to keep higher authorities and British officials without news or out of the way at the crucial time. It was not till 16 August, five days after the massacre, that news reached the Minister of the Interior, who immediately intervened to stop the trouble and to rescue the afflicted. But the leading nationalists and the Arab population as a whole rejoiced at the course of events. No punishments were ever inflicted; instead, at a parade in Mosul the Crown Prince Ghazi pinned decorations to the colours of the regiments engaged, and the general in command, the Kurd Bekr Sidqi, noted for his anti-Assyrian views, was given the title of Pasha. There were no more massacres, but three-quarters of the Assyrians in Iraq expressed a wish to leave Iraq and settle elsewhere. Eventually under League auspices a commission was formed to find a new home for them outside Iraq, and by 1939 some 8,000 had been settled in Syria along the Khabur valley of the Syrian Jazira. The remainder are still in Iraq. Britain defended the Iraqi Government before the League for its behaviour in a deplorable crisis and prevented any hasty intervention in Iraqi affairs or any restriction of the country's independence. But in Arab eyes Britain had merely failed to help her friends, and her prestige suffered accordingly.

Other Minorities

The weakness of Iraqi governments in dealing with minority problems is shown by their habit of *laisser-faire* towards the Kurds, of whom they have been somewhat afraid, and their harshness towards

[1] But on these figures see p. 383.

small and defenceless groups. When in 1935 the Yezidis rebelled against conscription, from which they had been specially exempted under Turkish rule, they were repressed with severity: 11 death sentences and 326 sentences of imprisonment contrasted with the leniency of punishment shown towards tribal insurrections in the middle Euphrates zone. The small sect of the Bahais (p. 330) suffered a notorious injustice in the Iraqi courts and could gain no redress even from the Throne; they were evicted from the house of their founder at Baghdad, which they owned, and the property was awarded to the Shia community, their bitter enemies, at whose instance all this was done. A similar spirit was shown by constant measures for the exclusion of persons who were not Iraqi citizens from most forms of trade and labour in Iraq. Yet Iraq probably suffers less from pure religious intolerance than most countries of the Middle East, possibly because the most intolerant elements are secluded at Karbala and Najaf; religious motives in apparent persecutions are generally subordinate to political and material causes.

Foreign Relations 1918–1943

Relations with Britain and Turkey, Iraq's most powerful diplomatic connexions, have been considered above.

Persia

It is said that King Faisal feared aggression most from Persia (Iran) among his country's neighbours, then under the strong and nationalist government of Riza Shah. Persian interest in Iraq is due partly to the fact that Najaf and Karbala are two of the three holiest cities of the Shia Moslem world, of which the Persians are the largest national unit, and partly to the fact that until the building of the new Persian harbour at Bandar Shahpur and the Trans-Iranian railway a great part of the trade of Persia reached the sea only by the Shatt al Arab. Hence the refusal of Persia to grant formal diplomatic recognition to Iraq until 1929 was a serious matter for both countries.

Between Iraq and Persia there exists a number of problems, mostly border disputes and all but one of minor importance, which can be easily solved by goodwill but are capable of becoming the excuse for serious trouble. The division of southern Kurdistan between the two countries and the seasonal migration of the nomadic tribes sometimes causes friction. Rebellious chiefs may seek refuge across the frontiers and continue their intrigues from neutral soil, as did Shaikh Mahmud in Persia in 1926, when also no less a person than the brother

of the deposed Shah hid in Iraqi Kurdistan. Disputes over the summer grazing-grounds in Persia of Iraqi tribes such as the Kurdish Pizhder and Jaf or the Arab Bani Lam have generally been solved by local agreements, but tribes have sometimes been excluded from Persia to their great detriment. There are also disputes over the distribution of river water in southern Iraq. The Iraqis, being downstream of their Persian neighbours, tend to get the worst of the water system and call in their government to help them. The Gangir water, on which the cultivators of Mandali depend, has been a source of much trouble. More serious difficulty is caused by the presence in southern Iraq of the large group of persons who by origin are Persian nationals but by Iraqi law are regarded as Iraqis, unless they have gained special exemption. Muhaisin tribesmen living on the west bank of the Shatt al Arab (p. 371) often attempt to obtain Persian papers of identity in order to avoid their obligations to the Iraqi Government. This matter is aggravated by the Sunni–Shia division of the people and by the religious status of Karbala and Najaf. Persian intrigue with the mujtahids of these cities has at times caused awkward situations for the predominantly Sunni government at Baghdad, as when certain of the mujtahids led the agitation against the mandate in 1922. Offence can also arise by the Persian Government placing an embargo on the pilgrimage or by the Iraqi Government restricting the Shia ceremonies for reasons of public order.

Shatt al Arab. The most material issue between Persia and Iraq concerned the boundary along the Shatt al Arab, which had been fixed by the Commission of 1914 (p. 268). By this the boundary ran along the low-water line of the left bank, thus leaving the whole channel in Iraq, except for the anchorage of Mohammerah, which was specially excluded. The ambitious Persian government of Riza Shah was eager to secure a revision of frontiers by which the boundary should run down the centre of the channel, as is usual in such circumstances, and thus divide the control of the Shatt al Arab which was in fact exercised by the Basra Port Directorate. It was mainly for this reason that Persia refused to give diplomatic recognition to Iraq till 1929, and openly flouted in many high-handed incidents the authority of the Port Directorate on the Shatt al Arab. Persia was also thought to have designs upon the 'transferred territories' and their oilfields, including Khanaqin, also given to Ottoman Iraq before the war of 1914–1918.

Iraqi-Persian Treaty. In 1929, when a subsidiary complaint was removed by the abolition of the remnants of the 'capitulations' in

Iraq, from the benefits of which Persians had been excluded, Iraqi-Persian relations were put on a normal basis. But the disagreement about the Shatt al Arab persisted, and no general and permanent treaties could be made or ratified between the two countries until after 1936. Then the attitude of the small Middle Eastern states to one another was suddenly changed by the attack of Italy upon Abyssinia. Persia and Iraq buried their minor differences and in 1937 signed a Treaty of Friendship and an agreement about the Shatt al Arab frontier, and came to an understanding with Turkey and Afghanistan for a Four-Power Pact, the *Treaty of Saadabad.* This pact, like the contemporary Iraqi treaty with Saudi Arabia, was not concerned with the detailed and normal relationship of the countries and their citizens, but contained a non-aggression agreement for consultation in the event of any external threat and for the prevention of foreign intrigues within the countries concerned. The course of events from 1939 to 1943 has so weakened Persia, now occupied by British, Russian, and American forces, that the old issues have receded into the background.

Saudi Arabia

The Wahhabi power, which first arose in Nejd under the leadership of the Saudi family in the late eighteenth century (p. 261), has gained fresh impetus in the twentieth from the appearance of a great personality, Abdul Aziz Ibn Saud, creator of the present State of Saudi Arabia. Because of a defeat inflicted on Ibn Saud in 1915 by his rival Ibn Rashid, Amir of Hail, it was only after 1918 that the expansion of Nejd recommenced. But the final conquest of Ibn Rashid and the Jabal Shammar tribesmen and the capture of Hail in 1921 brought Ibn Saud into immediate contact with Iraq. He sought to extend his tribal influence northwards into the Syrian desert and lower Mesopotamia among the Anaiza, Dhafir, and Muntafiq, and to assert his authority over a section of the Shammar tribe which had moved north to join the Iraqi Shammar in the Jazira. Also the Iraqi tribes, particularly the less warlike shepherd tribes of the Euphrates, became the natural object for the ferocious raids of Ibn Saud's own tribesmen organized in the Akhwan brotherhoods. These are settled agricultural communities of former beduin who still live for raiding but by their beliefs are prevented from raiding one another. Akhwan raids were quite different from the old desert half-warfare or half-sporting foray: the Akhwan slew man, woman, and child and would drive off the whole livestock of a tribe; in one such

raid they carried off 9,800 sheep, 1,630 donkeys, and 83 rifles after looting 100 tents and killing 74 men. For a time it seemed that the hungry desert was about to overflow again into the settled lands with a major inundation. The wider Ibn Saud extended his sphere of government, the more serious became the danger for Iraq and also for neighbouring Kuwait. But relations between Iraq and Nejd were first stabilized by the *Treaty of Mohammerah* (1922), which assigned the Muntafiq, Dhafir, and Amarat tribes to Iraq, and the southern Shammar to Nejd, and contained an agreement for the mutual prevention of tribal aggression. A protocol defined a fixed boundary line which separated the traditional wells and lands of the tribes concerned and included a neutral zone (p. 3). Naturally there was no intention of interfering with the peaceful migratory movements of the tribes for seasonal pasture; the frontier line was useful simply as a mark in shepherding raiding tribes back to their homes.

The Treaty of Mohammerah did not, however, establish peace between Iraq and Nejd because there was deep-seated jealousy between Ibn Saud and Faisal, the son of Sharif Husain, whose kingdom of Hejaz Ibn Saud succeeded in annexing in 1924–1925; Faisal's brother Abdulla, Amir of Transjordan, was also within the orbit of Nejdi expansion. Hence attempts at a comprehensive settlement of Arabian problems and the personal reconciliation of Faisal and Ibn Saud failed (1923–1924), and Ibn Saud did not effectively restrain his marauding tribes. A step towards desert security was made in 1925 by the Bahra agreement, which renewed the pledge against raiding and established a joint tribunal to fix responsibility for future raids and to assess damages: raiding might in practice continue, but it was to be paid for. The Bahra agreement was indeed part of a wider scheme by which Nejdi expansion into Transjordan was limited and frontiers defined.[1] After the conquest of the Hejaz (1924–1925) the Akhwan found themselves again unoccupied and made a series of great raids upon the Iraqi tribes, both in Iraq and during their customary migratory movement following the herbage into Kuwait and Nejdi territory, when they were particularly open to attack. To prevent this a series of advanced posts with radio communications to summon aircraft assistance was built and garrisoned by small detachments at points well behind the Iraqi frontier: Shabicha, Salman, Busaiya, and a temporary air base at Nukhaib, with another military post farther back at Abu Ghar on the track to Nasiriya. In the interest of his tribes Ibn Saud took violent objection to this

[1] See *Geographical Handbook of Palestine and Transjordan*, B.R. 514, p. 400.

system, which aimed at the suppression of all hostile tribal movement and which, by the use of aircraft against tribesmen, 'outraged the feelings of his people'. However, in 1929 he found it necessary in his own interest to reassert his authority over several tribes which were openly flouting his orders. After the rebels had been crushed he realized the desirability of coming to an understanding with the Iraqi Government, and the long-delayed personal meeting with Faisal took place in H.M.S. *Lupin* at the mouth of the Shatt al Arab (Feb. 1930).

As a result of this meeting a formal *Treaty of Friendship and Bon Voisinage*, with an arbitration protocol and an extradition agreement, was concluded and signed (1931). The treaty provided particularly for measures to prevent raiding from either country, whether on a large or a small scale, and likewise established the right of the tribes of either country to complete freedom of movement in the territory of the other for grazing or for purchase of provisions. To control these matters a permanent Frontier Commission was set up. Since 1931 friendly relations have generally persisted between the two countries and no fresh outbursts of heavy raiding have taken place. In 1936 the two states formed a closer connexion by concluding a *Treaty of Arab Brotherhood and Alliance* which aimed at the diplomatic and military collaboration of the two countries for the prevention of aggression and the pursuit of common interests and also for scientific and educational co-operation. This treaty, together with other agreements with the Gulf states, Yemen, and Egypt, the richest of the Arab states, marked a complete change in the relation of the hitherto aggressive Wahhabi power to its neighbours, and foreshadowed the negotiations for an Arab federation which have been pursued in the Middle East since 1942. The attempt of Nuri as Said, Premier of Iraq, to take the lead in these negotiations (1942–1943) has, however, given some offence to Ibn Saud, who believes that the Iraqi aim is to renew the power of the humbled Hashimite family by the union of the Syrian and Mesopotamian states under a Hashimite prince.

Syria and Palestine

Formal relations with these countries are mainly concerned with the regulation of beduin migrations and the delimitation of frontiers in the Jazira and the Syrian desert, which is nominally divided between four countries but is a geographical unit for the nomads. Trouble is caused by the division of the Shammar and Anaiza confederations between Syria and Iraq into tribes which are often

mutually hostile. The frontier was settled and demarcated only in 1932–1933 by League Commissions; certain adjustments were made in the line hitherto followed and in particular the whole of the Jabal Sinjar was included in Iraq.

The informal social and political relationship of these countries is very close. Syrian and Lebanese Arabs, who have generally attained a higher level of education through the universities at Damascus and Beirut, have contributed much to the extension of civilization in modern Iraq, where many professional men, particularly doctors, are of Syrian origin; many Iraqi students attend the Syrian universities. The continuation of the mandatory regime in Syria and Palestine is a source of constant agitation among the Arab nationalists of Iraq, which provides both support and refuge for Syrian nationalists (p. 304). Syria, Palestine, and Iraq have also been brought into closer contact by the development of motor-roads and oil pipe-lines across the Syrian desert, and by the completion of the Aleppo–Mosul–Baghdad railway through the Jazira.

CHAPTER VI

PEOPLE

Race

ANTHROPOLOGICAL study and measurements have been made on so restricted and local a scale in Iraq that the following remarks and generalizations must be taken with great caution.

The history of Iraq has shown that the country has been subject to periodic invasion and settlement by the peoples of Anatolia, the Iranian plateau, the Arabian peninsula, and Turkistan throughout the past 6,000 years. Yet there is a remarkable homogeneity among the inhabitants of southern Iraq, who may be styled 'Arabs'. Nomads and fellahin approximate to a racial type, though there is a deal of variation within the type. This unity is due to the fact that the bulk of the invading peoples have been drawn ultimately from one source, the Caucasian folk who in very remote times provided the racial stocks of the Middle East. The Arabs seem to be a mixture of the two main divisions of Caucasian Man, the Alpine (including the Armenoid) and the Mediterranean. It is widely held that the present population of at least the 'Middle Euphrates'[1] zone are of the same general type as the inhabitants of Sumer and Akkad in the third millennium B.C. and are even their direct descendants. But from what is known of the Chaldean and later invasions from the Arabian peninsula the latter theory does not seem to be probable, except perhaps for the true Marsh Arabs, whose racial characteristics have not yet been studied (p. 339). Within this homogeneous block of Arab Iraq the only notable exceptions are the Persian and Indian colonies, mostly at Karbala and Najaf, which are maintained by special circumstances; even the Jews are racially akin to the Arabs.

In northern Iraq there is a similar homogeneity among the hillmen. The Kurds and their racial associates, the Yezidis and 'Assyrians', form a distinctive type, but their racial affinities have not yet been exactly established, though they would seem to be closely connected with the Alpine branch of Caucasian Man and also with the inhabitants of north-west Persia. The Kurds were already present in the northern mountains in the Parthian period, and are generally regarded as the descendants of the Medes of the Assyrian period. The plains of northern Iraq contain a conglomeration of nationalities and races

[1] See p. 353 n. 1.

including Iraqi Arabs, Kurds, and Turkomans. Of these the Moslem Arabs are recent immigrants, but the Christian Arabs are the direct descendants of the Aramean population of the Parthian period and earlier; racially the Jews of Iraq, though partly derived from Palestine,

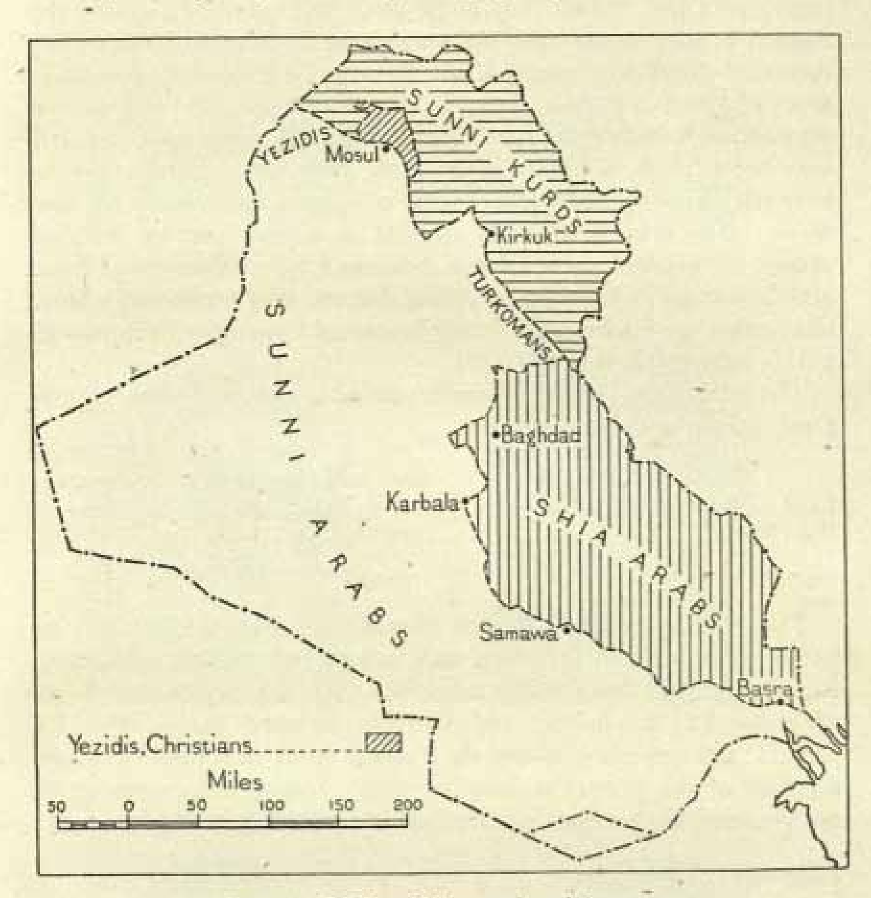


FIG. 59. *Main religious and racial groups*

are of similar origin. The Turkomans, who form a string of communities in the Erbil and Kirkuk provinces, are the remnants of the Turkish invasions of the Abbasid–Seljuk period. They appear to belong to a branch of the Alpine tree of Caucasian Man. The Mongols, unlike the Turkomans, do not seem to have affected the racial types of Iraq or to have left any direct descendants except possibly the Shebeks (p. 329).

Physical Characteristics

The Arabs are predominantly long-headed or dolichocephalic, with a persistent percentage of short-headed or brachycephalic individuals. In stature they range from short–medium among the Anaiza beduin to medium–tall among the Dulaim and the settled Arabs of the district round Kish. Average heights of groups range from 163 to 172·5 cm. (5 ft. 4 in. to 5 ft. 8 in.). The purest type seems to be found among the Anaiza beduin, who sometimes approach to a basic 'proto-Mediterranean' type. Hair varies from brown to very dark brown, medium to coarse in texture, and usually has low waves. The nose is generally straight or slightly convex, with an occasional marked curve of the Armenoid type. Eyes range from grey-brown to dark brown in colour, but are very occasionally blue. Skin colour varies from the sallow brown of a southern European to a dark brown (photos. 136–138).

The following head measurements (in cm.) were found among one group of about 400 individuals:

	Kish Arabs	*Iraqi soldiers (i.e. mixed)*	*Zubaid (Baij) tribesmen*
Head length . . .	18·84	18·74	19·14
Head breadth . . .	14·17	14·36	14·02
Cephalic Index . . .	75·26	76·66	73·37

The Kurds are short-headed (brachycephalic), medium–tall in height (5 ft. 5 in.–6 ft.), with dark brown hair, brown eyes, olive complexion, and thin aquiline noses, but there is a certain proportion of blue-eyed, fair-haired, and fair-complexioned individuals. In physical strength they exceed the average Arab, and hence provide the bulk of the porters of Iraq (p. 342). Statistical information is not yet available for Kurdish head measurements (photos. 139–140).

Language

The official language of Iraq is Arabic, and it is spoken throughout southern Iraq by the Moslem and Christian Arabs and by many Kurds and other minorities of northern Iraq. Other languages are also spoken and in certain areas are the second official language or the language of instruction in schools. Of these Kurdish is the most important and is spoken by all Kurds; in the mountainous parts of Kurdistan they have no second language except Persian in some districts, though in the plains they often speak Arabic.

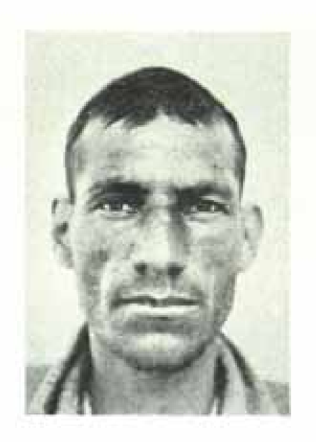
Kurdish is an Indo-European language allied to Persian, and in




136. *Arab, short-faced dolichocephalic type, aged 30*




137. *Arab, brachycephalic Mediterranean type, aged 20*




138. *Dolichocephalic Arab, aged 30*



139. *Hamawand Kurds*

140. *Pizhder and Mangur Kurds*

Iraq there are four main forms of it which are by no means mutually intelligible. The common Kurmanji dialect is spoken north of the Great Zab both by Kurds and Yezidis; this has no literature. South of the Great Zab two closely related Kurdish dialects are spoken, one called Sorani in the Erbil province between the two Zabs, and the other called Sulaimani Kurdish south of the Little Zab, which is pre-eminently the language of Kurdish literature and the printed word. A fourth dialect, Gorani, is spoken by the unorthodox communities of Sarlis, Kakais, and Shebeks (p. 329), and by some of the southernmost Kurdish tribes such as Zangana and Bajlani. The Arabic alphabet is used for Kurdish, though it is said that the Latin suits it better.

In northern Iraq the Syriac language, derived from ancient Aramaic, is spoken by the Christian communities; an east Syriac dialect is used by the Chaldeans and Nestorians, and a west Syriac by the Jacobites and Syrian Catholics. It would seem that most of these people also speak Arabic or Kurdish.

The fourth language spoken in Iraq is Turki, which is the language of the Turkoman communities of Mosul and Erbil provinces and is said not to differ very greatly from Osmanli Turkish; it is written in Arabic script. Jews speak Arabic, though Hebrew is now being introduced.

Certain foreign languages are spoken by some individuals in the towns, such as English in the Ashar quarter of Basra, and Persian in Khanaqin, Karbala, Najaf, and as a commercial language in Baghdad. Some Christians educated by the Dominican Mission at Mosul may speak French.

Religion

In general terms four-fifths of the population are closely enough related to be called Arab by race and language, and one-fifth might be styled Iranian. But the only distinction to be felt in terms of nationality or race in Iraq is that between Kurd and Arab. This is expressed by the Kurdish proverb 'A camel is not an animal, an Arab is not a human being', and its repartee 'There are three plagues in the world, the Kurd, the rat, and the locust'. Otherwise the fundamental distinctions are those not of race but of religion, in which there is a homogeneity that is more apparent than real. About 93 per cent. of the people are Moslems, and Islam is the official religion of the State. But the Moslems are divided between the mutually intolerant Shia and Sunni sects, a division which is the most disturbing factor

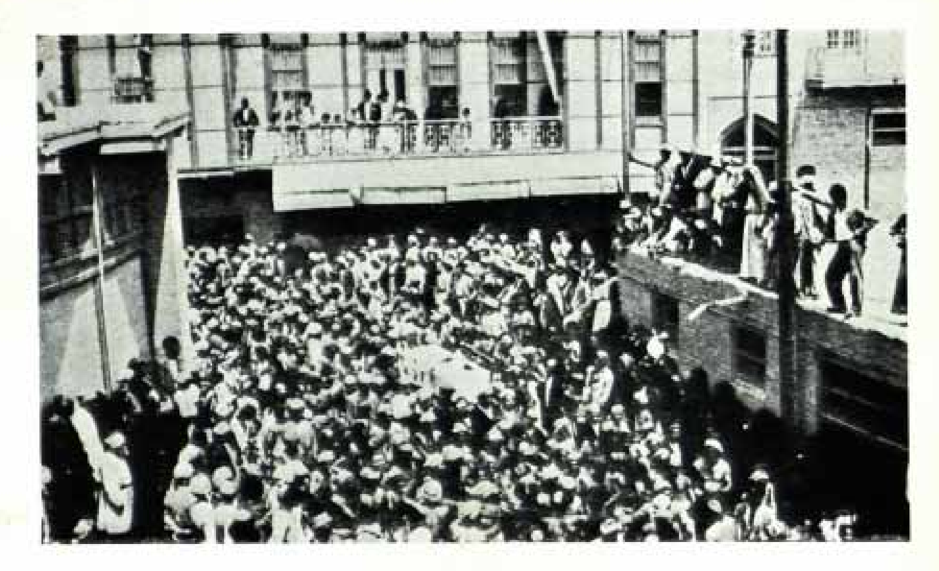
in Iraq, and the Sunnis are split by the racial antagonism between Kurds and Arabs. The Shias outnumber the Sunni Arabs and Kurds together in the proportion of about 8 : 5, but within the Arab population the Shia preponderance is very much greater, probably about 3 : 1. Yet political power is firmly held by a ruling class which is drawn from the Sunni Arab element. These facts go far to explain the turmoil of Iraqi politics. A Sunni Arab minority dominates both a Sunni Kurd minority of at least equal size and a Shia Arab majority thrice its size.

Within the small non-Moslem minority the greatest single groups are the Jews and Christians, survivors from the pre-Islamic period. The Christians are subdivided into many churches or sects, and there are two strange pagan communities of Yezidis and Mandeans which also survive from the pre-Moslem era.

The essential fact about the distribution of the people by religion, discussed in detail below (p. 379), is that the bulk of the Shia Moslems are found in the southern provinces south of a line from Falluja on the Euphrates to Baghdad and the Diyala. Sunnis predominate north of this line, but are also found in the southern provinces, particularly in the cities of Baghdad and Basra. In the Mosul and Erbil provinces of northern Iraq there is far greater diversity. This area contains a mosaic of religions and nationalities which recalls Syria and Palestine rather than the plains of southern Iraq: Arabs, Kurds, and Turkomans, in communities of Sunni Moslems, Christians, Yezidis, Jews, Mandeans, Shebeks, and Sarlis.

Islam

The essentials of Islam both in faith and practice are common to its various sects: surrender to the will of God revealed through the Prophet, prayer, fasting, charity, and pilgrimage. The first is expressed by recital of the creed—'there is no God but God, and Mohammed is the messenger of God'. *Prayer* means the five daily prayers, particularly at sunrise, noon, and sunset, accompanied by certain gestures of the body, which must be rendered clean by ceremonial ablutions. Public prayer is offered in the mosques on Friday when the muezzin summons the faithful. *Fasting* from both food and drink is performed throughout the month of Ramadan between sunrise and sunset, a very trying feat when Ramadan falls in a hot month; it is not, however, incumbent on those in military service or on travellers. *Charity* includes fixed obligatory alms (*zakat*) and voluntary (*sadaqat*). *Pilgrimage* means not only the great pilgrimage or *Haj* to Mecca

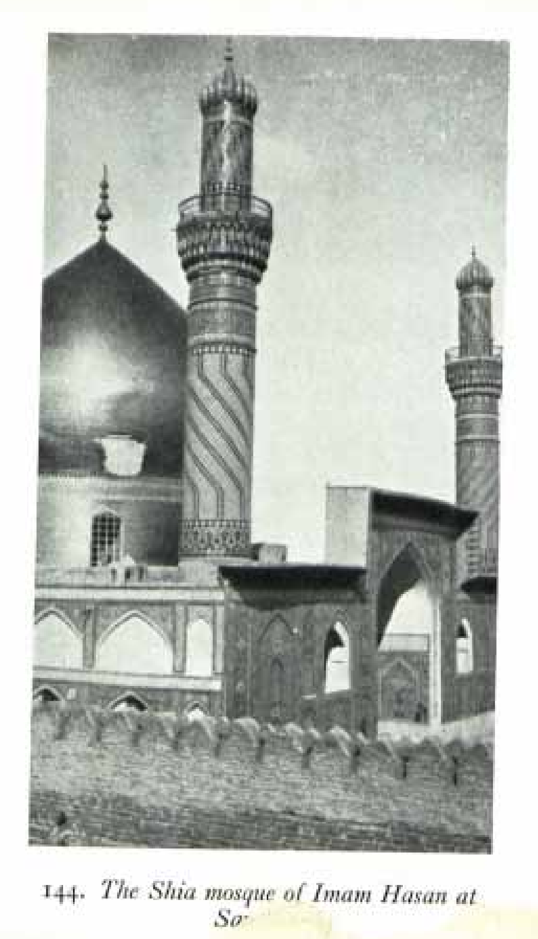


141. *A Moharram procession in Baghdad*

142. *The Great Mosque at Kadhimain*



143. *Entrance to Yezidi temple at Shaikh Adi*



144. *The Shia mosque of Imam Hasan at So*

which gives a man the title of Haji, but also voluntary pilgrimage to local and national shrines. In Iraq the making of pilgrimages both to the Shia and the Sunni shrines is very popular, and many men spend a great part of their lives as pilgrims. The taboo against the flesh of the pig and alcoholic drink is generally strong in Iraq; a dog, particularly a wet dog, is also regarded as unclean.

Moslem clergy consist of the *Mullas*, who are the village priests and who hold the village schools, and of the clergy of the town mosques of whom the more senior are called *Imams* (not to be confused with the Shia Imams, below). *Qadis* are teachers or theologians who act as judges of the religious law or *Sharia*. They refer disputed points to the authority of a *Mufti*, who is the leading Imam of a principal mosque. The senior theologians are known collectively as the *Ulema*, or Wise Men.

Shias. The historical origins of the Shia sect have been already described (p. 240). No analogy with the divisions of Christianity can make clear the distinction between Shia and Sunni because Islam is not a sacramental religion, except perhaps that just as the Catholic is distinguished in one way by the greater attention which he pays to Our Lady and the Saints, so the Shia is distinguished by his extreme devotion to the Twelve Imams, particularly Ali and Husain, who tend to overshadow the Prophet Mohammed in the Shia system. Devotion to the Imams is for the ordinary Shia the essence of his religious life. The theological basis of this devotion is the belief that the Imams, the direct descendants of Mohammed and Ali, inherited the superhuman powers of Mohammed and could interpret the will of God and tell future events; their mouthpieces since the disappearance of the Twelfth Imam have been the *Mujtahids* or superior clergy, who give authoritative decisions on religious matters. Thus the Shias add to the Mohammedan creed the words 'and Ali is the vicegerent of God'. Other differences are mainly in religious practice. Shias stress more than do Sunnis the prescriptions of ritual purity, which is regarded as the main duty of the faithful. Attendance at public worship—the Friday prayers—is not obligatory, because there is no legitimate Imam to direct the prayers of the faithful. Their clergy are trained at the seminaries (*madrasa*) of Karbala and Najaf, and the most highly respected of them gain the title of *Mujtahid* by tacit consent; the title of *Imam Mujtahid* is given to the presidents of the chief mosques of the leading towns. The Mujtahids of Karbala and Najaf, sometimes known collectively as *Ataba*, or the Threshold, instead of Ulema, have authority throughout the entire Shia world.

In Iraq they can when they wish exercise great political influence (p. 291).

The principal Shia shrines in Iraq are at Karbala and Najaf. The reputed tomb of Ali is at Najaf, though the site of his death is in the great mosque of Kufa. At Karbala there is the tomb of Husain and other shrines connected with the battle of Karbala at which Husain was killed (p. 240). Karbala and Najaf are full of theological students supported, with their wives and families, by very extensive charitable funds (*waqf*) including the Oudh bequest, an Indian foundation. No control is exerted over their studies to ensure attendance, and a man may remain a student at the madrasas for as long as he wishes. Other holy places, the tombs of later Imams, are at Kadhimain, and at Samarra there is the cave or well in which the Twelfth Imam disappeared. These are described in the Gazetteer of Towns, pp. 522 ff. The shrines have their custodian (*kiliddar*)—a figure of some importance—chief attendant (*sarkhidma*), and lesser attendants.

Pilgrimage to these shrines is a great feature of life in southern Iraq and is reckoned very meritorious, being voluntary instead of obligatory like the pilgrimage to Mecca. Pilgrims come from Persia, Afghanistan, and India, and from the Shia regions of Syria, and there is much local pilgrimage within Iraq. The visit to the shrines is called *ziyarat*, and at the shrines the pilgrims secure rosaries, shrouds, and tablets of sacred earth (*turba*). At his daily prayers a Shia bows his head upon the turba instead of touching unconsecrated ground. Pious Shias bury their dead in cemeteries adjoining the shrines mentioned above, and thus secure the protection of the saints. There is a constant traffic of coffin-caravans to the shrines, which gain a considerable revenue from this source.

The most notable festival of the Shia year is the mourning for Husain during the first ten days of the month Moharram. Passion-plays (*taziya*) tell the story of his death, and troops of mourners work themselves into a frenzy in which they flagellate themselves with swords and chains until the blood flows. It is a time of great excitement and outbursts of fanaticism may occur. To a certain extent the processions are organized affairs in the less remote towns, and wooden weapons are often substituted for swords, but there is a very considerable element of genuine religious emotion among both mourners and spectators.

Sunnis. Sunnis are so named from the Sunna or Traditions which with the Koran they hold to be the final revelation of their religion.

The main characteristics of orthodox Sunni belief, theology, and jurisprudence established in the first three centuries of Islam have already been described (p. 251). The only important movement of recent origin within Sunni Islam is the Wahhabite teaching, which like certain forms of Protestantism claims to be a revival of the primitive faith, and is certainly very puritanical towards slackness in observance of the Koranic rules and towards later accretions to Islam. But Wahhabism is not strong in Iraq, where the Sunnis are generally noted for their tolerance. Fanaticism is seldom found except in Kurdistan, where strict observance of the external forms of piety is commonest among the village headmen, who set the tone of the whole community; many southern Kurdish tribes follow the Shafii rather than the more liberal Hanifite rite. The Sunni clergy are trained at the Sunni madrasas, but the theological schools of Baghdad have not the reputation enjoyed by the great Moslem universities at Damascus and Cairo. Iraq has one notable Sunni shrine, that of Shaikh Abdul Qadir Gailani, whose mosque and tomb at Baghdad are a centre of pilgrimage from regions as remote as India. Some lesser shrines are biblical, such as the Maqam Yunas (Jonah) at Kufa and the tomb of Ezekiel at Kifl. The effective representative of the Sunni community in Iraq is the dignitary known as the Naqib of Baghdad, who is the hereditary custodian of the shrine of Shaikh Gailani.

Minor Moslem Sects. In some districts of the Assyrian plains and foothills obscure sects known as Sarlis, Kakais, Shebeks, and Qizilbashis are found. The *Sarlis* and *Kakais* are the same, Kakai being generally used south of the Little Zab and Sarli north of it. Their religion is identical with that of the better known Ali Ilahi sect of western Persia. It is one of a number of pantheistic secret cults sprung from Islamic mysticism. Characteristics of these sects include belief in the deification of Ali and the transmigration of souls, a communion service, and so on. The adepts, particularly those of Persia, like to refer to themselves as Ahl-i-Haqq, People of the Divine Truth, but Kakai is the most convenient and distinctive name to use in Iraq. The Kakai religion is distinguished from the others by its reputed founder, Sultan Ishaq. Every adept has a Pir, belonging to one of ten families of *Saiyids*. Five of these are reputed to be descended from five sons of Sultan Ishaq and five from other 'saints' or from the guardian of their tomb. It is thus not exact to regard these ten divisions as ordinary tribal sections. Kakais and Sarlis speak the Gorani dialect of Kurdish.

The *Shebeks* or Chabaks of Mosul province are another unortho-

dox Shia sect, akin to or identical with the Qizilbashis who are affiliated to the Bektashi order of dervishes. The Shebeks are believed by their neighbours to be the survivors of the Mongol invasions (p. 246). Also, many of the Turkoman villagers of Kirkuk province are Qizilbashis. The *Bahais*, who are found in Baghdad, have a different origin. They are the followers of modernist Shia teachers who in the nineteenth century created a great stir in Persia by identifying themselves with the Twelfth Imam. They accept Mohammed and the Koran, but hold that revelation is progressive. Their connexion with Iraq is incidental, but they have suffered juridical persecution from the orthodox Shias of Baghdad (p. 316).

Yezidis

The Yezidis, whose proper name is Dasnayi, speak a Kurdish dialect and are thought to be of Kurdish stock. In Iraq they inhabit the Jabal Sinjar and the Shaikhan district north-east of Mosul (p. 381). The Yezidi faith is a mixture of both ancient and living religions. The Zoroastrian element is most notable, and their name may derive from the Persian *Yazdan*, God. They believe that the supreme being, the spirit of good, delegated power over the world for 10,000 years to Satan (*Shaitan*) on his fall from heaven. Hence their religion seeks not to worship but to placate one who is regarded more as the Lord of Power—a Babylonian and Semitic notion (p. 222)—than as the author of evil; but the name of Shaitan is never pronounced, nor will they utter similar words beginning with *sh*. The more cheerful part of their religion is concerned with nature worship and the cult of the sun. There is a spring festival and in October a Feast of Assembly at Shaikh Adi, at which a bull is sacrificed to the sun, 'Shaikh Shams ad Din', in whose honour they illuminate the neighbourhood at night with numerous little oil lamps. A great place is held in their pantheon by the Peacock King, Malek Taus, a power of nature apparently not to be identified (as is usually said) with Shaitan. They have seven sacred and secret bronze images of Malek Taus for different sections of their community.

They respect Christ (Malek Isa) as an angel and Mohammed as a prophet, and have adopted many biblical stories. Baptism and circumcision are customary; they drink wine, but do not eat pork, gazelle, or fish, lettuce, beans, or pumpkins. Red is a favourite colour for clothing, which is in the Kurdish style (p. 346), but blue is taboo; their sacred books include the *Kitab al Jalweh* or Book of Revelation, containing an account of the powers of Satan, and a Black

Book which contains a myth of the creation of the world and of the origin of the Yezidis with the name of Satan erased when it occurs. They have a holy village and shrine at Shaikh Adi, 30 miles north-east of Mosul. Shaikh Adi himself was apparently a Moslem and a pupil of the Sunni saint Abdul Gailani (p. 329). Friendly strangers may be admitted to his tomb but not to an inner shrine which even Yezidis seldom enter. On the door of the shrine is a black serpent, the symbol of Shaitan, which pilgrims kiss, and there is a holy spring supposed to draw its water from the well of Zemzem at Mecca (photo. 143).

The community has for its head a *Mir* or *Amir*, and there are often rival claimants. There is also a religious hierarchy: *shaikhs*, *mullas*, and *qawals* are preachers and teachers, the qawals also being concerned with the ritual of the Peacock King. Other priests are *pirs*, and the attendants of the shrine of Shaikh Adi are called *kuchaks* and *faqirs*. The *sh* taboo has made it difficult to educate Yezidis, though attempts have been made to provide them with expurgated text-books. Yezidis are greatly despised by their Moslem neighbours.

Sabians

The Sabians (*Subbu*) or Mandeans who live mostly in the southern delta and in Persian Arabistan (p. 382) are, like the Yezidis, a pagan sect of ancient origin and diverse elements. Their distinctive characteristic is the importance of baptism and of frequent ceremonial ablutions, for which reason they always live near fresh water. Because of this and of the respect which they pay to John the Baptist they were first reported by Europeans as the 'Christians of St. John'. Their Supreme Being is the King of Light, and their faith contains elements of Manichaeism (p. 238) but not of Islam; also it lacks the notion of a Saviour. They pay attention to astrology and at prayers turn towards the Pole Star, where they are said to place Paradise. They have several holy books written in Aramaic, which is their ceremonial language. By Mohammed they were classed in the Koran as a tolerated sect with the other Peoples of the Book, Jews and Christians —one reason for their survival—but they consider both Moses and Christ as false prophets.

They have a special calendar of 12 months of 30 days, with 5 extra intercalary days; at their New Year festival they stay 36 hours indoors. Sunday is a day of rest, but has no special services. Their headquarters in Iraq are at Suq ash Shuyukh, where as elsewhere they ply their craft either as silversmiths or as boat-builders, for both of which they are famous (photo. 160).

Jews

The origin of the Jews of the Captivity and the later development of the Jewish colony in Iraq has already been explained (pp. 232, 247). Orthodox rabbinical Judaism was developed in Mesopotamia rather than Palestine in Parthian and Sassanid times, and the Mesopotamian Talmud was its greatest literary product. The Iraqi Jews of to-day are the heirs of this tradition and strictly maintain their ancient customs and beliefs. Two great shrines, the tomb of Ezekiel at Kifl and the so-called tomb of Ezra at Azair,[1] are links with the times of the Captivity. The strictest sect of Jews in Iraq was the Karaite, the 'sons of the writing', whose general strictness still marks Iraqi Judaism.

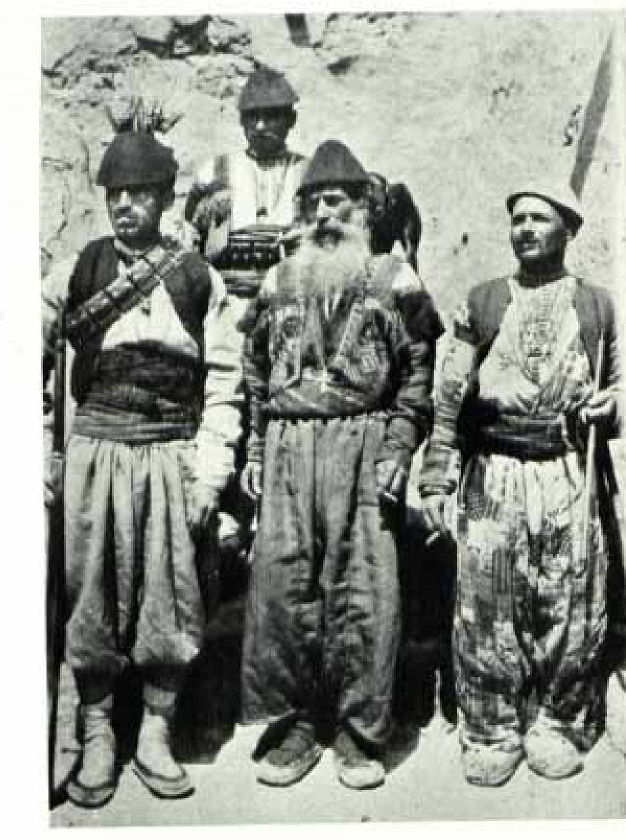
Though the Jews are mostly urban in habitat they are also found scattered through the countryside particularly in the larger villages (p. 382). Their greatest colonies are at Baghdad and Basra; in remote corners of Kurdistan there are hamlets of agricultural Jews who speak Syriac and may be direct descendants of the Jewish converts of the Parthian period (p. 233). Like the urban Christians, Jews play a great part in the economic life of Iraq as traders and money-lenders. The well-known English family of the Sassoons is a branch of a wealthy house of Baghdadi Jews. The organization of the Jewish colony has been modernized, and the picturesque Prince of the Captivity replaced by an elected President, Chief Rabbi, and various councils (p. 396). Arabic is their normal spoken language, though the modern revival of Hebrew is gaining some ground.

Christians

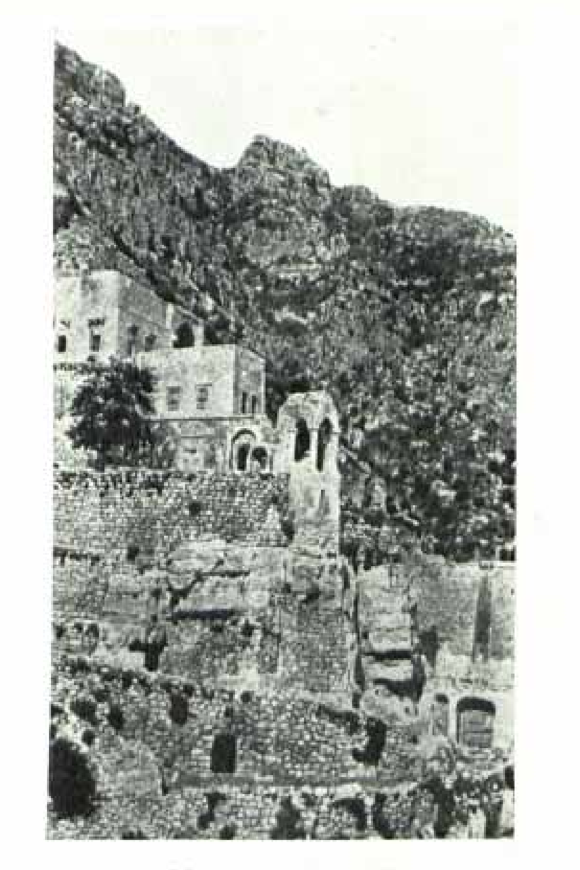
The Christian communities of Iraq survive from the Byzantine age. They have persistently clung to their traditional faith despite the enticements of Islam, political repression, and occasional persecution. Their division into churches reflects the schisms of the fifth and sixth centuries A.D., particularly the monophysite doctrine of the indivisibility of the nature of Christ and the opposed Nestorian belief in the dual nature. But these ancient philosophic distinctions are almost forgotten to-day, and the real differences between the churches are in customs and liturgies, the churches being minute nations rather than congregations. Though there is a large urban Christian community at Baghdad and a smaller colony at Basra, the majority of the

[1] Azair was beneath the lagoon, if not under open sea, in Ezra's day; see fig. 14, III–IV. The building is a very much later construction (photo. 15).

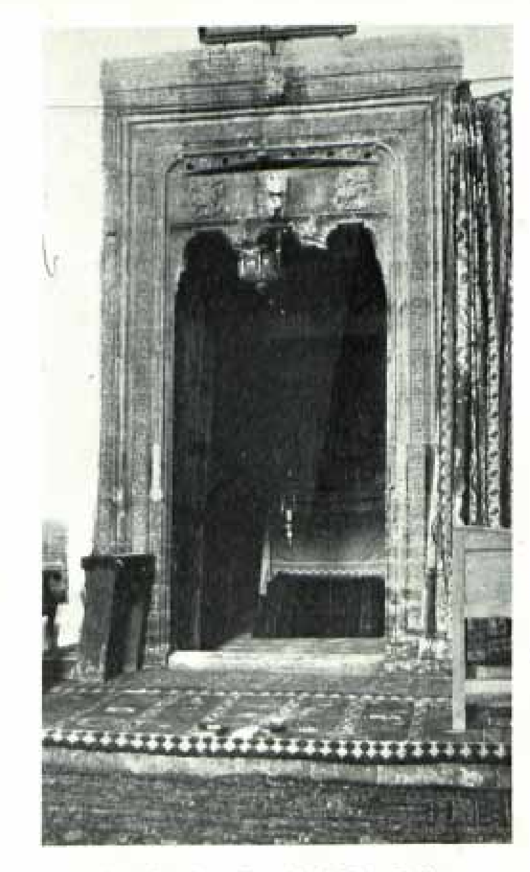
145. *Yezidis from Sinjar*



146. *Assyrian priest and deacons*



147. *Monastery of Mar Mattai, Jabal Maqlub*



148. *Altar in Chapel of Mar Behnam monastery*

Christians are found in northern Iraq. There they live partly in urban communities, of which that of Mosul with its numerous archbishoprics is the most notable, and partly as peasants in agricultural villages in the Mosul plain, the members of each village often belonging to a single communion (p. 382); often they are the tenants of Kurdish aghas; and individual families are also found in the mountain regions working as craftsmen in Kurdish villages.

Originally two autonomous churches existed in Mesopotamia to represent eastern or Orthodox—as distinct from Latin or Roman Catholic—Christianity: the Nestorians and the Jacobites or Syrian 'monophysites'. But each of these suffered a schism through the influence of the Roman Church and now has a 'Uniate' branch in communion with Rome: the Nestorian Chaldeans and the Syrian Catholics. Communities which became Uniate brought their property, customs, and beliefs with them. Thus the change was nominal in local effect, and was usually made for the sake of the protection given by European consulates against the Ottoman authorities.

In addition to these four churches, which represent the pre-Moslem native population, there are also the Armenian churches which contain a now numerous element that has drifted into Iraq from Anatolia. The ecclesiastical situation is somewhat less complicated than in Syria because the Greek Orthodox and the 'Latin' Church proper are represented only by individuals; the Protestant element, mainly the work of American Baptist and Congregational missions, is negligible.

Chaldeans. These form the largest Christian church in Iraq, which originated when the more exposed Nestorian communities of the Mosul vilayet accepted the supremacy of the Pope in 1778 in order to gain French protection against Kurds and Turks. They have the benefit of a Dominican mission and school at Mosul which has raised their standard of education. There are some Chaldean monks, and a notable monastery at Al Qosh village. Their head, the 'Patriarch of Babylon', lives at Mosul. An Apostolic Delegate of Mesopotamia is appointed by the Pope to act as liaison agent with the Chaldean and other Uniates.

The Chaldeans are mostly peasants in villages of the Mosul plain, but they also provide the main supply of deckhands and firemen on the river steamers of Iraq and work as raftsmen on the Tigris. A few are doctors, lawyers, and journalists. Like the Nestorians, their native tongue is Syriac.

Nestorians. Since the arrival of the Assyrian refugees from Hakâri

in 1918, survivors of the once widespread Nestorian church of central Asia (p. 247), this has been the second largest church in Iraq. Previously Nestorians were confined to the Barwar-i-Bala district along the northern frontier of the Mosul vilayet (p. 383). The church, which was established by the disciples of the theologian Nestorius in the fifth century, retains forms of worship used at a very early period in Christian history, including the most ancient liturgy in Christendom. The head of the community is an hereditary patriarch, the Mar Shimun, who is also the paramount chief. Each village has its priest, who is allowed to marry. Nestorian fasts are long and severe, the chief being in Advent (25 days) and throughout Lent; there are weekly fasts on Fridays, and a 3-days' fast at the end of winter. Much was done to assist the Nestorians of Hakâri before 1914 by an English mission sent by the Archbishop of Canterbury, since when much interest has always been taken in them by Englishmen. Their recent political history is described on p. 312 ff.

The 'Assyrians', or Easterners as they call themselves, are a tribally organized agricultural and pastoral people by origin, though the pre-1914 Nestorians of Iraq had lost their tribal organization and were known as *rayat*. Like the Kurds, they have proved adequate technicians and mechanics, and since 1941 the community has drawn its livelihood mainly from service in the Levies and other employment with the R.A.F. Their native and ecclesiastical language is Syriac, though many speak Arabic (photo. 146).

Jacobites. This is a 'monophysite' community first organized by Jacob Bardaeus in Syria and northern Mesopotamia in the sixth century (p. 239). They use an ancient liturgy known as that of St. James the Less and their liturgical and national language is Syriac. Parish priests marry before ordination, but bishops are celibates or widowers. The order of deacons is extensive and influential, providing a link between laity and clergy, as many deacons follow secular occupations. The head of the church is called Patriarch of Antioch and has lived at Mosul since his expulsion from Tur Abdin by the Turks in 1924. A second dignitary is the 'Maphrian' of Mosul, or senior bishop. There are some monks, and there is a famous monastery (Deir) at Mar Mattai in the Jabal Maqlub where the great Jacobite scholar, Gregory Bar Hebraeus (1225–1286), is buried (photo. 147). The Jacobites are a peasant people whose agricultural villages are found in the Mosul plain and in Jabal Maqlub.

Syrian Catholics are Jacobites who became Uniates for much the same reasons as the Chaldeans. Their head, another Patriarch of

Antioch, lives at Beirut in Syria, where Syrian Catholics are more numerous. Their villages are interspersed with those of the Jacobites, and they have a remarkable monastery at Mar Behnam in the Mosul plain north of the junction of the Great Zab with the Tigris.

The *Armenian Gregorian Church*, the national Armenian Church, founded by St. Gregory the Illuminator (A.D. 255–326), adopted the monophysite doctrine in the sixth century. The Armenians of Iraq are a scattered and mostly urban people whose chief colonies are in Baghdad and Basra, where they are tradesmen, clerks, or mechanics and include some wealthy merchant families. The Gregorians are numerous enough to have received a modern communal organization, similar to the Jewish, in 1931. There are also some Armenian Uniates or Catholics.

Way of Life

Arabs

Very diverse opinions have been formed by English travellers about the virtues of the various inhabitants of Iraq, dependent mainly upon the social and religious bias of the particular observer. Few admire both Arabs and Kurds or Moslems and Christians. The following notes seek not to strike a mean but to stress notable characteristics, and are only of very general application.

Mental and Moral Characteristics

The Arab mind is lively, imaginative, and subtle, and Arabs of all classes, beduin, fellahin, and townsmen alike, show remarkable powers not only of discussing subjects within their experience but of grasping new and difficult facts and theories. They are quick to follow arguments and sensitive to vivid phrases, have a great love of oratory and speechifying, and are generally talkative and genial. At their best they make good hosts and amusing, though inquisitive, companions. But they are non-inventive and slow to put theories into practice; as craftsmen they find it very hard to depart from traditional methods. They often seem to Europeans to be incompetent and lazy, lacking in constructive ability, and skilful mainly in avoiding hard work. Contempt for manual labour is common both to beduin and to townsmen, particularly of the effendi class. The ideal of Arab behaviour held by the upper class of urban and tribal society includes courtesy, dignity, hospitality, and generosity, and they admire actions displaying these qualities, but they will often evade the spirit while

observing the letter of the moral obligations which they recognize. External politeness is greatly valued, and Arabs are very sensitive to bad manners and rudeness. They have a remarkable capability for intrigue and their loyalty is tempered by time-serving; on occasion they commit astonishing acts of treachery and dishonesty, but it is to be remembered that in Iraq, as in Ireland, political motives are taken very seriously and supersede other loyalties. The Arab, like the Kurd, may act with violence in a sudden fit of rage, but is less implacable. Within the family there is a high standard of personal morality, breaches of which are sharply punished, often by death (p. 338), and the countryman, whether peasant or shepherd, is noted in ordinary transactions for simplicity and honesty. But when occasion arises, e.g. in military camps and around archaeological diggings, the Arab is a most skilful thief and apt at evading sentries, especially at night.

In the Christian Arabs these mental and moral qualities have been modified by thirteen hundred years of subjection. Slyness and dissimulation have been adopted as protective habits, and the dishonesty which many attribute to the urban Christians has a similar origin. The Christian Arabs adopt modern inventions, improvements, and education more easily than the Moslem, and are superior as clerks and men of business. The Christian peasants are industrious, though in certain communities the men are said to be great drunkards.

Economic Organization

Excluding the townsmen of the largest towns, the Arabs of Iraq live either by stock-breeding or by agriculture, and their habit of life varies accordingly from the pure nomadism of the desert *beduin* to the settled condition of peasantry or *fellahin* in agricultural districts. But there are many variations between these extremes. Many fellahin live in tents for part or whole of the year, and would revert to sheep-breeding and nomadism if their water-supply failed, while many nomadic tribesmen sow a patch of land to supplement the products of their herds, and others are continually settling down to the raising of crops. The only clear distinction is between the camel-breeding beduin of the Syrian desert and Jazira (p. 339), who in their seasonal migrations traverse vast distances, and the shepherd nomads of the rest of Iraq. Among the shepherd nomads there is a distinction between those who move in very narrow limits and may be called semi-settled and are really stock-breeding fellahin, and those who penetrate a fair way into the desert at the time of the spring vegetation, such as the nomadic Dulaim; these are called *shawiya* or

donkey tribes because they use the donkey instead of the camel. This distinction is not necessarily either tribal or regional. Though tribes may be wholly nomadic or wholly fellahin, many tribes, particularly the larger, contain sub-sections both of shawiya and of fellahin, and the two ways of life are intermingled within the various regions of the country, though the fellahin are tied to the localities where there is water for irrigation.

Tribal and Social System

The tribe is an extension of the family. Non-urban Arabs belong by birth to a section or sub-section of a particular tribe. In a small tribe the section may be but a single family with its collaterals; in a large tribe there is more subdivision of the section. But the tradition of common descent varies greatly in strength. Many tribes are associations of unrelated sections for offence or defence, and the tribes themselves are often grouped in confederations for similar reasons. Thus the tribal system is fluid. Sections can change their allegiance or become independent tribes, dependent or client tribes may come to be regarded as part of the protecting tribe, and confederations may be regrouped in fresh patterns. Tribal sentiment is naturally stronger among the beduin and shawiya nomads than among the semi-settled nomads and fellahin, who are brought more closely under the external influence of state officials and urban landlords.

Within the tribal group authority rests with the shaikhs of the sections and with the paramount shaikhs of the whole tribe or tribal confederation. Disputes are submitted to the local shaikhs, or to holy men chosen by the litigants, or to a tribal council of all the shaikhs. But the last resort is murder and the blood-feud. Public opinion exerts itself chiefly towards the preservation of ancient customs; an obstinate minority can thwart even a powerful chief or the wishes of the majority, because few care to incur the blood-feud which such a minority might set on foot. Hence tribal negotiations tend to be protracted and tortuous. The shaikhs of the larger units are chosen as a rule within a single family by the tribal council, which selects the fittest and most experienced man without special regard to primogeniture.

The most coherent groups of fellahin are the agricultural tribes of the 'Middle Euphrates' zone between Musaiyib and Samawa, and those on the Tigris from Amara north to and along the Diyala. Except on the Tigris, the tribes and tribal confederations and even sections are rapidly resolving into their component parts. The most

effective tribal authority is the village shaikh; this is usually the shaikh of a tribal section or sub-section who has built himself a mud tower of refuge and become virtually independent. He is usually both shaikh and landlord, and his tribesmen farm his lands as share-croppers (p. 445). Here and elsewhere the shaikhs of nomadic and semi-nomadic tribes have encouraged the settlement of their tribesmen, and have tried to turn themselves into feudal landlords under the schemes of land settlement promoted since the time of Midhat Pasha (p. 267). The change is reflected in the change of housing styles: the nomad's tent is first surrounded by shelters of reed, then by a mud-brick wall, and finally replaced by a mud hut.

The standard of living is very low and is generally at subsistence level, providing for inadequate food and very few clothes. It is calculated that in 1930 a peasant made the equivalent of 110 rupees a year and a shepherd 60 rupees: but for this they only worked 5–6 hours a day for a maximum of 9 months a year.[1] Between 1918 and 1923, however, when prices for produce were high, both shepherds and peasants became accustomed to certain luxuries such as tea and sugar which they have since found it hard to go without. The wealth of the shaikhs is only relative. Except for the paramount shaikhs of great confederations, a shaikh of a village or sub-section was well off before 1940 if his lands and dues produced a rupee a day. Since 1941 the immense influx of foreign money into Iraq from the armies of occupation has very seriously disturbed the economic life of the country (p. 485).

Education exists, if at all, in the school of the mulla, where children are taught to read the Koran, or if the mulla is himself illiterate, to recite it; some may be taught to read at home. They are thoroughly 'spoiled', but grow up sharing the responsibilities of the family. Boys and girls play together and there is no real seclusion or veiling of women, though an unmarried girl will cover the lower part of her face before a man. The influence of the family is paramount, and the young folk think and talk only of marriage and the family hearth. The usual age of marriage seems to be between 30 and 41 for men, and families are not large. The custom of cousin-marriage (p. 342) is declining, and, though the dowry motive is strong, marriages of love occur. As for polygamy, few but shaikhs can afford more than one wife at a time. The worst feature of the social system is the notion of family honour, whereby it is the duty of the family to kill any wife or daughter who has been slandered by village gossip however falsely.

[1] The rupee is reckoned as 1*s.* 6*d.*

Beduin. This term properly denotes camel-breeding nomads of certain specified tribes for whom the raising of sheep is a secondary pursuit. In Iraq these are the Shammar Jarba branch of the Shammar in the Jazira, the Amarat branch of the Anaiza in the Western Desert, and the Dhafir in the Southern Desert (p. 361 f.).[1] The beduin are not themselves caravaners, but sell their camels at local markets for meat or beasts of burden, and camel-hair for textiles, buying in return the bare necessities of life and a few luxuries such as sugar, tea, rice, and ammunition. The necessity for this marketing is the sole bond between beduin and settled tribesmen. They live simply (p. 344) in large black tents furnished at most with one or two rugs, and are very poor, though not perhaps so poor as the shepherd nomads; a beduin family may have 130 rupees a year. The beduin of Iraq are willing to work as mechanics for the oil companies, or as policemen, or in the Camel Corps. Formerly they all despised agriculture and the fellahin, but the decline in the value of camels as a means of transport is forcing a change upon them and apparently some beduin have accepted lands in the Abu Ghuraib canal zone. The wealthier shaikhs have long owned farmlands by the Euphrates or Tigris, which were worked not by their own tribesmen but by fellahin tenants. Diversions include hunting with hawks or hounds for bustard or hare, and gossiping in the shaikh's guest-tent, where coffee is dispensed and stories are told of war, camels, and women.

Their social system is a stricter form of that outlined above. Women enjoy considerable liberty, except the wives of shaikhs, who are cloistered, and they are held in higher honour than among shepherd and peasant tribes; heavy manual work is done by the men, not the women, who will ride while their men walk. Tribal law is in full force. Offences are against the individual, who need not carry out the sentence of the tribal judges or arbitrators. The tribe exists to *insure* the individual against all risks. Hence what is a crime within the tribe, such as murder or theft, is no crime against a member of another tribe or a foreigner. Crimes may be compounded for by blood-money, or a blood-feud may be pursued endlessly. This tribal solidarity is also the basis of tribal hospitality. No one starves in a tribe, and a man has a right to both the protection and the sustenance of his shaikh. But the abuse of hospitality is safeguarded by the tradition that this claim is exercised only as a last resource.

Marsh Arabs, or Madan. These people, who inhabit the swamps of

[1] Some authorities do not rank the Dhafir as true beduin; cf. p. 363.

the Euphrates below Nasiriya and the Tigris below Amara outside the patches of cultivation, are a separate and despised race, not to be confused with the cultivating Arabs of the marshlands despite a general similarity in their houses and way of life. In character they are said to be cunning, very patient of pain, ferocious and fearless on occasion, but cheerful and high-spirited. Physically they do not resemble Arabs but have round faces, wide noses, big mouths, and high foreheads. Their language is Arabic, spoken without any very peculiar features.

They and their livestock lead an amphibious existence, their water-buffaloes feeding and swimming apparently for days in the deeper marshes, and the other cattle feeding in the shallower parts on grasses which grow under water. Their means of communication is the large canoe or *mashuf*. The Madan huts (p. 347) are frequently built on floating bundles of reeds, but the cattle are milked and clusters of huts are built on patches of drier ground. The Madan take small interest in anything outside their own affairs, and give little trouble. They have tribes but no shaikhs of their own, and attach themselves to the shaikh of the nearest Arab tribe, particularly the Albu Mohammed (p. 371), to whom they pay tribute in kind for protection. They are dependent economically upon the rice-growing tribes from whom they buy their cereal food, and upon the Sabian traders of the delta towns who make their canoes and supply their utensils. Rice and fish are their main foods, and they take but one meal a day. The clothing of the men is only a waist-belt and sometimes a cloak, the children are usually naked, but the women dress as Arab women.

Kurds

Mental and Moral Characteristics

Though the Kurds, particularly the remote mountain tribes, have been much abused as treacherous, cruel, and stupid, it is to be remembered that they have lived ever surrounded by enemies and subdivided into isolated and mutually antagonistic communities. The necessities of self-defence have established the tradition of shooting the other man first, and the lack of central government has made brigandage a national pastime. But those who have lived long in communities of settled and semi-nomadic Kurds have always learned to respect them. The Kurds are far less intellectual and genial than the Arabs and less talkative, but they have a practical shrewdness and though somewhat dour and fatalistic they enjoy a joke against themselves or



149. *Reed hut, Arab style, under construction*



150. *Reed hut, Kurdish style*

151. *Kurdish porter*

152. *Arab pottery*

their race, which they themselves describe as avaricious (*tamakar*), savage (*wahsi*), and material-minded (*zahirbin*), 'seeing only what is before you'. They surpass the Arab in energy and enterprise and in genuine interest in modern inventions, and are said to be more cleanly than Arabs (p. 346). They do not despise manual labour, and their thrift and avarice make them keen farmers; though their own standard of work is relatively low, they soon learn to work hard under European leadership. The blood-feud is certainly pursued with far greater ferocity between Kurds than between Arabs, but is only implacable between men of high rank. The traditional readiness to shed blood is accentuated by extreme violence of temper which often causes sudden assassinations. In a private quarrel or an official investigation they will lie freely and break oaths, so that specially solemn sanctions are devised for them; but in ordinary transactions they have a standard of honesty. Kurds greatly admire acts of boldness and bravery, and their own simplicity and courage have won much praise. As friends their loyalty, when won, is more reliable than that of Arabs. The Kurd is also a great lover of his home, which he leaves with reluctance for periods above ten days, except in the seasonal migration of the whole community (p. 372). The duty of hospitality is strictly regarded (p. 342), and there is unusual freedom in their private lives; their women mix more freely with men and have a position closer to equality with men than in any other Asiatic Moslem community. On occasion they fight by their husbands' side and some have turned Amazon. Certain women have even attained the headship of clans and tribes, usually as regents. The most remarkable of these was the great Adela Khanum, who ruled the Jaf tribe at Halabja with her husband's acquiescence for many years from 1895 till her death after the war of 1914–18.

The Nestorian 'Assyrians' in character and virtues resemble the Kurds.

Social Organization

The Kurds live either by agriculture or by agriculture combined with sheep-breeding or by sheep-breeding alone. Accordingly they are either settled in permanent villages from which a proportion of their number may accompany their flocks on necessary seasonal migrations, or are nomads or semi-nomads, who live in tents and range sometimes far afield for summer pasture (p. 372). Both sedentary and nomadic Kurds are tribally organized (p. 343), but among the sedentaries the effective unit is the *gund* or village, a

term which denotes both land and houses. Among the plainsmen (*dundhok kwar*, wheat-eaters as distinct from the grape-syrup eaters, *doshab kwar*, of the hills) tribal organization may be less exact than among the hill Kurds, but the influence of tribal code and tradition on behaviour is very great; those who are absolutely non-tribal usually attach themselves to an influential *agha* as protector.

Apart from the farming population, Kurds, particularly Persian Kurds, provide the porters of southern Iraq, where the Kurdish porter is a traditional figure. Of recent years they have worked as labourers on road-making and other schemes of development, as policemen, and as soldiers. Earnings are on the same scale as among the Arabs, whether in cash or kind, though some of the land-owning *aghas* are wealthy men.

Villages are usually small in the mountains, containing ten or fifteen households, but larger in the plains; their inhabitants, except for one or two Christian or Jewish craftsmen and traders, are all interrelated through the practice of cousin marriage, and are kinsmen of the *agha* or village chief. They are also his tenants, because he owns the land, and in addition to his traditional authority he is also the agent of the central government or *mukhtar*, official headman, though this title is seldom used. In some areas, however, particularly among the plainsmen, where a powerful family has extended its control far afield by conquest, the aghas of the villages are not of the same stock as the villagers and the relationship is simply feudal; but the term serf is never applicable to the Kurd, who is a free man and is not tied to the soil. Village society consists of the agha's immediate relations, *khezm koimana*, and the commoners, *kurmanj*. Commoners are usually monogamous, marrying their cousins in a certain order of preference. Aghas have several wives and often marry outside the village to form political connexions with other aghas, or they may marry town-bred girls from Ruwandiz and Sulaimaniya to enhance the lustre of their families. Thus the agha's family is large and may include half the population of the gund. They need these extra wives to do the work of the guest-house, which is the main social obligation of the agha.

The guest-house may be part of the agha's house or tent or a separate building. It is open by right to all strangers, and to khezm koimana, but commoners enter only by invitation. Custom ordains that after compliments a new guest makes a present to the agha, usually of imported and therefore costly food or domestic articles. These gifts help to defray the expenses of the guest-house, but

lavishness in its upkeep is regarded as a great virtue and many aghas ruin themselves thereby. It has been estimated that the guest-house of a minor agha may cost him about £25 a year. Apart from the guest-house entertainment is also provided by the rural tea-houses or chaikhanas.

After the agha the second authority in the village is the *mulla* or priest. He is usually maintained by the agha and dependent on him, but sometimes may be a rival influence.

Tribes and Titles

The tribe, *ashiret*, is divided into clans, *taifa*, and clans into kinship groups, *tira*, which contain one or more gunds. The relationship is patrilineal, and in the smaller tribes ashiret and taifa or taifa and tira may be identical. Each subdivision has its agha and also owes allegiance to the larger groups, though the authority of the aghas of ashiret and taifa is often nominal. There are also some confederations of allied tribes, but these are rarer than among the Arabs. The usual function of the agha of a taifa is arbitration (*fasl*), for which he receives seasonal presents but no regular rents or tribute except from his own gund. The perquisites of the tribal agha are even less, and his proper job is to lead the tribe in war. But Kurdish leaders in recent times, such as Mahmud of Sulaimaniya (p. 307), have held authority not as aghas but as *shaikhs*. The Kurdish shaikh is not a tribal leader but either a holy man or the head of a family with a tradition for holiness.

The tribal system of the more nomadic tribes is generally similar to that of the sedentary, though the nomenclature is not always the same. Ashiret seems to be replaced by *kabila*, taifa by *khel*, and gund by *hoba*, which is a small settlement of tents in one location. The hoba is smaller in size than a gund and may contain only one large family, i.e. parents, children, and grandchildren with their dependants. The tribal agha has more effective authority than among settled Kurds, and holds the whole tribe together when in its migrations it is spread out over a wide area.

The Kurdish commoner has a single name to which he may add that of his village as a surname, e.g. Kharim Bakhani is Kharim of the village of Bakhani. The title *Agha* follows the name and may be used as a courtesy title by the near relations of the actual chief. The Turkish titles *Mir* or *Beg* are sometimes used instead or in addition, Mir preceding the name, e.g. Mir Hamid Agha-i-Naupardan is Sir Hamid, Lord of Naupardan. The position and title of agha do

not always pass by primogeniture; a second son may become agha while his elder brother lives quietly in the same village.

Peasants and Nomads

The agricultural Kurds are those of the mountains, where pasture is restricted, and of the watered parts of the Assyrian plains. The great shepherd tribes are found in the foothills and the less well-watered regions of Erbil and Kirkuk plains (see *Distribution*, pp. 373 ff.). But nomadism is a question of degree. Most agricultural Kurds also own flocks of sheep and goats, and in summer a part or even the whole of a village may accompany their flocks to higher ground during the great heat; the plainsmen Kurds often make a short migration between the sowing and the harvest to the freshness of the hills, returning in May. Other tribes, such as Dizai and Hamawand, are predominantly shepherds and make seasonal moves with their flocks within the limits of one region, but also own many villages and have much agricultural land. Then there are the purely nomadic tribes, of which Jaf and Herki are the chief, that live in tents in all seasons, often enduring great privations, and migrate in autumn from the Persian border mountains down to the outer valleys and plains accompanied by vast herds of livestock; at times their passage is disputed by the sedentary Kurds and great fights ensue.

Pure nomadism has been discouraged by various economic and political factors, particularly the attempted exclusion from Persia in the time of Riza Shah (p. 317) and the forced settlement of nomads in Turkey, but its total disappearance is unlikely as the shepherd tribes must in the climate of Iraq always be semi-nomadic.

Daily Life

Food and Fuel

Diet differs little throughout the country, though it is more varied in Kurdistan and more limited among the beduin than elsewhere. The staple foods are barley or wheat flour usually baked as unleavened bread in cakes or slabs (*chupatties*; Kurdish *nan*), boiled rice (*pilaf*) and boiled wheat (*borghul*; Kurdish *saua*); dried dates, or raisins in northern Iraq; and milk products—including cheese, freshly soured milk (Kurdish *mast*), buttermilk (*du*), and clarified butter (*semn*, *ghi*; Kurdish *run*)—eggs and a few vegetables, onions being the commonest and the only ones among the beduin. In Kurdistan many more vegetables are available, including tomatoes, marrows, cucum-

bers, and lentils, and also numerous fruits, while elsewhere melons and gourds may be found. Date-juice syrup (*dhibs*) and honey are the sweetening agents. Meat—lamb, kid, camel, chicken, or occasionally gazelle—is a rarity, being eaten once or twice a week or only at festivals. Other luxuries are coffee (*gahwa*), sweetened tea (*chai*), sugar, and very long and mild cigarettes. *Araq*, a strong spirit distilled from dates, is drunk only in small towns and cities and never by strict Moslems. German officers in 1941 commented on the inadequacy of this diet, as issued to the Iraqi army, for fighting men.

Meals are normally eaten without the use of implements sitting on the ground around a great tray on which the food is piled. But liquids such as buttermilk are served in bowls and ladles; tea and coffee in small glasses.

Fuel is very scarce, particularly in the plains. Timber shipped down the rivers by *kellek* or *shakhtur* is expensive, and much use is made of dried dung, camel thorn, and date fronds.

Clothing

Formerly in Iraq a man's rank and religion could be told by his headgear; hence the importance of this topic. Now European dress has made disastrous incursions into city life and high society, though the *sidara* or national hat fortunately replaces the bowler. In the countryside native dress is worn. But even in Baghdad Moslem dress is as common as European, and ladies of high society who wear 'Paris fashions' at home usually don the Arab costume out of doors or as an over-dress. European dress is increasingly common for both sexes in schools and institutions.

Arab dress is fairly uniform. Men wear a long cotton shirt or *dishdashi* buttoned to the throat over a cotton vest and pants, and covered by a light brown cloak of camel-hair or wool, the *aba*. The head is covered by a white, or black and white, or red and white cloth, the *kaffiya*, held in place by a brown or black coil of wool or rope, the *agal*. Feet are bare or covered by sandals of home-knitted string tops and leathern bazaar-made soles. Shaikhs wear a white kaffiya with an agal of silver or gold thread, and a long tight over-garment, the *zibun*, which has long sleeves and opens unbuttoned in front. Women's dress does not differ greatly from the men's. Out of doors one vast shapeless aba is worn over the shoulders and another over the head, enveloping the whole person. Beneath this on special occasions a fine zibun is worn over the dishdashi. Indoors the zibun is covered

by a wide and wide-sleeved *hashimi*, more a veil than a coat, made of transparent net of striped black silk. Outdoor clothes are black, indoor clothes usually turquoise blue, though girls wear puce, green, or orange. For ornaments tribal women wear the nose-ring or *khezama* and the *warda*, a jewelled rosette of gold set in the nostril. Among Christian women the outer dress is more splendid than with the Arabs. The silken *izar*, with tapered hood, which replaces the aba, worked in gold or silver thread, may cost £10–£45. The Chaldean women are famed, especially at Tel Qaif, for the charm and brightness of their clothes, and for their elaborate head-dresses of gold and beads. A peculiarity among the Jews is the blinker or eye-shade worn by the women. Henna stains are used on fingers, palms, and the soles of the feet, and kohl and tattoo marks are used by both men and women, the men being rather vain.

Kurdish dress differs greatly from Arab and has many local variations. The principal garments are: wide trousers or pantaloons hitched up by a calico girdle of great length wound round the body, in which money, valuables, and knives are kept, a wide-sleeved shirt or gown, a short quilted jacket or tunic, and a long voluminous cloak. In cold weather or as a kind of body armour a waistcoat of felt an inch thick is added. Peaked leather slippers (*qalik*) or boots are a necessity because of the hard going, and the headgear is a bushy fringed turban wound round a small skull-cap or among mountain tribes a tall conical cap with a tassel. The most notable variant is among some southern Kurds, especially Hamawand and Jaf, who wear the Arab dishdashi over their trousers. Among southern Kurds trousers usually have bell bottoms; in the north they are baggy at the top and narrow at the ankle. Women wear trousers and long gowns reaching to the feet, sometimes covered by a long buttonless zibun, and on their heads a silk handkerchief or a small turban over their skull-caps. Both men and women favour bright colours and gay striped materials (photos. 139, 140).

Weapons, when carried, include rifle, dagger, or club. The Kurdish dagger is the curved *khanjar*, up to 18 inches long, in a scabbard often of silver, which may be plain or decorated and cost a great sum, from 8 to 40 rupees.

Though there is no sense of sanitary hygiene in Iraq, both Kurds and Arabs deserve some credit for attempting to maintain a certain standard of personal cleanliness of both body and clothes. Arab women of town and tribe are said to labour very hard to this end despite a general lack of water.

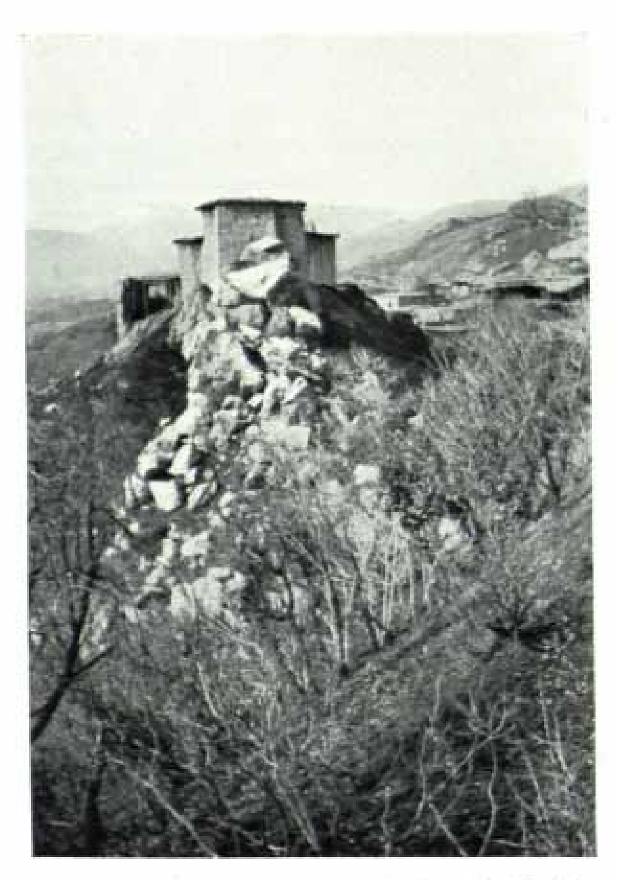


153. *Roofs of Shaqlawa*

154. *Stone and mud hut of the Assyrian plains*



155. *Qala Haruna, Baradost country*



156. *Chinara, headquarters of the Baradost Kurds, near the Rubar-i-Haji Beg*

Houses and Villages

Southern Iraq. Three types of human shelter are found in southern Iraq: the nomadic tent, the reed hut, and the mud-brick hut. The great black tents, which may contain several compartments, are made of woollen cloths and may be protected by shelters of wattle or even by mud-brick walls, among the more settled tribes. Their great virtue is their mobility, because frequent shifting of location frees the Arab from the accumulation of his own dirt and keeps him relatively clean.

Beduin tents are black or dark brown in colour, and range from the moderate-sized tents of the Dhafir tribe among whom the four-pole tent is the largest, to the great tents of the Amarat, among whom four- and five-pole tents are common, while the guest-tents of the greater shaikhs may have seven poles. In summer beduin encampments are arranged in orderly rows near perennial wells with the tents facing the wind. In winter the tents are dotted in threes and fours over a wide area, usually in grassy depressions and with backs to the wind. Numbers of camels are usually to be seen; and the visit of traders is indicated by small square white tents. The southern Shammar camp on high ground or ridges where all may see them. Shepherd nomad or shawiya encampments are distinguished by the small size and the light colour or striped pattern of their tents, the untidy arrangement of the encampments, and the presence of large flocks of sheep and numbers of donkeys.

The reed huts (*sarifa*) made of reeds and reed mats, used by tribesmen and Madan of the marsh areas, are of two patterns, either curving to a vault or built with an eaved roof above straight walls; they may be of great size. They can be erected in a day and the materials are easily moved from site to site by mashuf. In the wettest places the floors are built up with reed mats above the water. In flood season a very slight bank of mud will suffice to keep the rising water out in the drier areas, because the flow and pressure are very slight away from the channels; or a family may camp in its mashuf, sometimes inside the hut, or pack the hut up and move it elsewhere (photo. 149).

The mud hut is the home of the settled Arab, though villages of mud huts may be built by semi-settled tribesmen and abandoned after a few seasons. The walls are built in the biblical style out of balls of mud mixed with straw by a master builder and several assistants. Their roof beams are made of palm branches on which reed mats are laid and covered with mud. Windows are little more than holes in the walls filled, if at all, with a row of bottles or a sheet of glass.

Villages consist of a huddle of 30–300 mud huts surrounded by a mud wall, a fence of camel thorn, and a few palm-trees, and may contain a mud tower for the shaikh, and a small mud building with a courtyard which acts as the mosque. Small domed buildings, *gubba*, are the shrines of holy men and contain a stone tomb which is visited by pilgrims; these shrines are very common in the agricultural regions.

Northern Iraq. In the mountains, because of the scarcity of land, villages are usually built on the side of a steep hill of no agricultural value. Hill-top positions are apparently not in favour, villages usually being just above the ploughland; for security against attack they are frequently in positions guarded by deep ravines on either side. The hill villages, which are usually quite small (p. 357), may be either a huddle of houses, forming what is almost a solid block, or a group of isolated clusters. Houses are usually built one above the other, so that the roof of one house forms the terrace in front of the house above (photo. 153).

Kurdish houses are quite different from Arab houses and reflect a different form of society. They are simple rectangular buildings usually of one or two stories with narrow windows on the first floor in the outside walls. In peaceful times and places there may even be windows on the ground floor. When strengthened by towers at the corners these houses make admirable forts for the aghas; at night when the door is barred the sense of isolation is complete. Building materials are rough-cut stone set in mud plaster or else sun-dried mud-brick. The roof is flat and is supported by wooden beams and is made of a local compost of lime, ashes, and rubble, which in wet weather does not remain hard but needs rolling. The beams are the most valuable part of the building and are carefully removed when a house decays. Wealthy shaikhs and aghas convert these houses into comfortable homes by the use of glass windows, wooden floors, and hinged doors, and by adding a vent for the smoke above the fireplace, which is a pit in the floor (photos. 40, 155, 156).

In the plains mud huts often replace stone houses, though the latter occur, excellently built, in some Christian villages of the Mosul plain. In the plains village sites are determined by the presence of wells, and villages are much larger than on the mountains, sometimes containing up to 5,000 people.

Nomadic tribes live in tents similar to those of the Arab beduin, but the semi-nomads on their summer migration often erect huts of wattle instead of tents.



157. *A Baghdad Coffee-house*



158. *A Country Summer-house*



159. *An Arab Merry-go-round*

160. *Sabian Silversmiths in their shop*

Life in the Towns

One main distinction between the life of the towns, especially the smaller towns, and that of the countryside is that their inhabitants, whether Kurds of Ruwandiz or Arabs of Hilla, have usually no tribal organization. The towns house an upper class of absentee landlords, beneath whom are the *effendis*—government officials, lawyers, doctors, schoolmasters, clerks, and those who live by the pen and their wits (p. 301). Somewhat apart are the clergy, Moslem and Christian, who may be very numerous. The third stratum contains the shopkeepers, merchants, and transport agents, owners of camels, mules, and donkeys. But a large part of the population of the smaller towns is agricultural and labours daily in the fields often at a fair distance from the towns. A particular feature of Iraq is the number of towns which are holy cities built around and dependent on sanctuaries, holy places, and religious establishments, whether Moslem, Christian, or Jewish.

Social life is organized by means of coffee-houses and tea-houses where all who can afford to be idle spend the day 'talking gossip and plotting against the government'. The town coffee-house takes the place of the village guest-house in southern Iraq, but in Kurdish towns the town aghas have elaborate guest-houses which they maintain in great style for the entertainment of their country kinsmen. For hotels there are *khans* which are balconied caravansarais built round a courtyard with the rooms on the first floor. Here the travelling merchants put up and store their goods, buying in exchange the wares offered in the booths of the *suqs*, covered markets containing long alleyways of little stalls and workshops. Public life is represented by the *sarai*, usually a large modern building, which contains the government and municipal offices, and religion by mosques and churches; it is only in the towns that the mosques have domes, minarets, and spacious courtyards. The great shrines in the holy cities are extensive buildings; mosques of several domes contain the holy tombs and are enclosed within a great precinct usually with a madrasa or college attached, and the whole is elaborately adorned with coloured tiles and precious metals usually in the Persian style (photos. 142, 144, 207).

Private houses are generally built around a courtyard and may be large though not tall—two or three stories at most. They usually contain a cellar or sunken room (*sirdab*) for use during the heat of the summer days, while their flat roofs are used for sleeping during the

summer nights. At Basra the local style of house with outside windows and balconies above ground-level makes a pleasant habitation.

The extent to which the Moslem way of life has been europeanized varies greatly between the large and the small towns. Even in Baghdad where European influences are strongest they do not yet predominate even in externals such as dress or food. But a semi-European style of serving meals is common, as are European beds, tables, and chairs. Khans are being rebuilt as hotels, and an interest is being taken in outdoor games and physical training; in northern Iraq a native form of hockey is played, and even football is coming into fashion in the villages of the Mosul plain.

There is great enthusiasm among the young Baghdadi effendis for everything modern, from aircraft to high schools and typewriters. But the influence of the family is very strong against innovation, and particularly against the education of women. The veiling and seclusion of women are almost universal in towns, and the school-mistress or typist with bobbed hair and modern dress is a great rarity, and needs much strength of character to maintain herself. Women do not object to this seclusion, which is a sign of the respect felt for them by their husbands or parents. The strongest influence retarding the modernization of Iraq is this family influence. The individual dares not rebel against his family, and the family will not put into practice the excellent reforms of ordinary life in matters of sanitation and cleanliness which are constantly being urged in the Parliament and the coffee-houses. The tradition that it is the duty of the man who secures office or power to use it for the advancement of his own relations is equally pernicious. Another feature of effendi life is persistent indebtedness. The debt laws play into the usurers' hands by enabling them to recover from the income of their debtors. Hence most young officials, who incur debts first from the extravagance forced upon them by family tradition at the time of their marriage, are never allowed by the usurers to escape from it. It is probable that in another generation these conservative influences will have been greatly weakened, and great changes may take place in the social life of at least Baghdad.

In the smaller towns there is no great difference between town and country way of life in material things, except for the greater wealth of the town population and its higher standard of living. There is more vice and drunkenness in towns than is ever found in the countryside, but the Kurdish towns are much stricter than the Arab

in this respect. In some of them, such as Erbil and Sulaimaniya, a puritanical strictness is enforced by the local authorities. Arab society too is very respectable, and though special quarters exist in Baghdad and elsewhere for the more lurid vices, they are never allowed to invade family life.

CHAPTER VII

DISTRIBUTION OF POPULATION

IN Moslem countries, particularly those that have been under Ottoman rule, the population seeks to avoid registration and census because they are the prelude to conscription and taxation, and the officials tend to rely on estimates made by the local administration or by the shaikhs themselves. It is only when the people begin to realize that benefits in the form of schools, agricultural relief, and irrigation schemes may follow the accumulation of statistics that these begin to be reliable. The data for Iraq have been greatly influenced by these tendencies. In certain divisions of the country, particularly the Kurdish provinces and those of the Middle Euphrates region, there has been remarkable fluctuation in the estimates published between 1930 and 1943. In other parts of the country, which have had a less turbulent history, the figures show less variation, particularly when the administrative provinces are grouped in their natural units. It would seem that in 1935 and in 1943 more effective counts were made than had hitherto been possible and that these figures may be taken as a rough guide to the size of the population; in two provinces, Sulaimaniya and Diwaniya, the 1935 estimate may be more reliable than that for 1943, and in a third, Baghdad, the 1943 figure shows a vast increase which has not yet been explained (p. 360).

General Distribution

The 1943 estimate gave the total population of Iraq as nearly 4 millions, and it appears that of these, as in 1935, some 90 per cent. were actually registered, and that the remainder were administrative estimates from the reports of local officials. *But all statistics in this chapter must be regarded with great caution.*

The provincial totals in 1943, taken to the nearest thousand, were as follows; figures in brackets are for 1935:

Population in thousands

Province	Population	Province	Population
Mosul	509	Diwaniya	292 (416)
Erbil	201	Hilla	225
Kirkuk	233	Karbala	133
Sulaimaniya	142 (184)	Kut	152
Baghdad	927 (499)	Amara	280
Diyala	218	Muntafiq	230
Dulaim	131	Basra	321
Total			3,995,000

If the provinces are grouped in the natural units of population the general distribution will be clearer.

Northern Iraq (Mosul, Erbil, Kirkuk, and Sulaimaniya)	1,085	Middle Euphrates[1] (Diwaniya, Hilla, Karbala)	650
Central Iraq (Baghdad and Diyala)	1,115 (714)	Lower Tigris (Kut and Amara)	432
Upper Euphrates[1] (Dulaim)	131	Lower Delta (Muntafiq, Basra)	551

Four major areas have a relatively heavy population of 49 to 91 persons per square mile (fig. 60): the Assyrian plains in Mosul (91) and Erbil (49) provinces, the Diyala and Baghdad agricultural zone (75), and Basra province (76). The Kirkuk plains and foothills (29) and the valleys of Sulaimaniya province (39) have a slighter density over a smaller area. The Middle Euphrates and Muntafiq provinces, despite their agricultural prominence, rate very low (14–15), half the figure for the two provinces of the lower Tigris (31). The country as a whole, with an area of 175,000 square miles (p. 3), has an average of only 23 persons to the square mile.

Such overall figures are misleading in a country such as Iraq where the greater part of the land surface is either absolute desert or uncultivated and uninhabited. The relevant figures are those which give the proportion of persons in rural occupations to the area of cultivated land. These figures are not easy to establish because of the difficulty of distinguishing between urban and rural elements, a great part of what are registered as townsmen being in fact peasantry (p. 356). The following table gives the average density per square mile of cultivated land[2] for the population of 1943, only the city populations of Baghdad, Mosul, Basra, and Kirkuk being excluded. The figure for Karbala province is anomalous, the true proportion of urban population not being determinable:

Density per sq. m. of cultivatable land

Mosul	70	Dulaim	225	Kut	36
Erbil	72			Amara	109
Kirkuk	39	Diwaniya	66		
Sulaimaniya	147	Hilla	89	Muntafiq	119
		Karbala	505	Basra	831
Baghdad	324				
Diyala	147				

[1] The use of these terms, geographically incorrect (p. 290, n. 1), for the section of the river within Iraq is both usual and useful when dealing with population and tribes. Upper Euphrates means above Musaiyib, and more particularly above Falluja; Middle Euphrates from Musaiyib down to Samawa; Lower Euphrates from Samawa to Qurna.

[2] Cultivated land includes that actually under cultivation and fallow land (p. 452).

These figures (fig. 61) give an average density of rural population of 82 in the provinces of northern Iraq and 156 in the Baghdad–Diyala and Middle Euphrates region, excluding Karbala province. It may

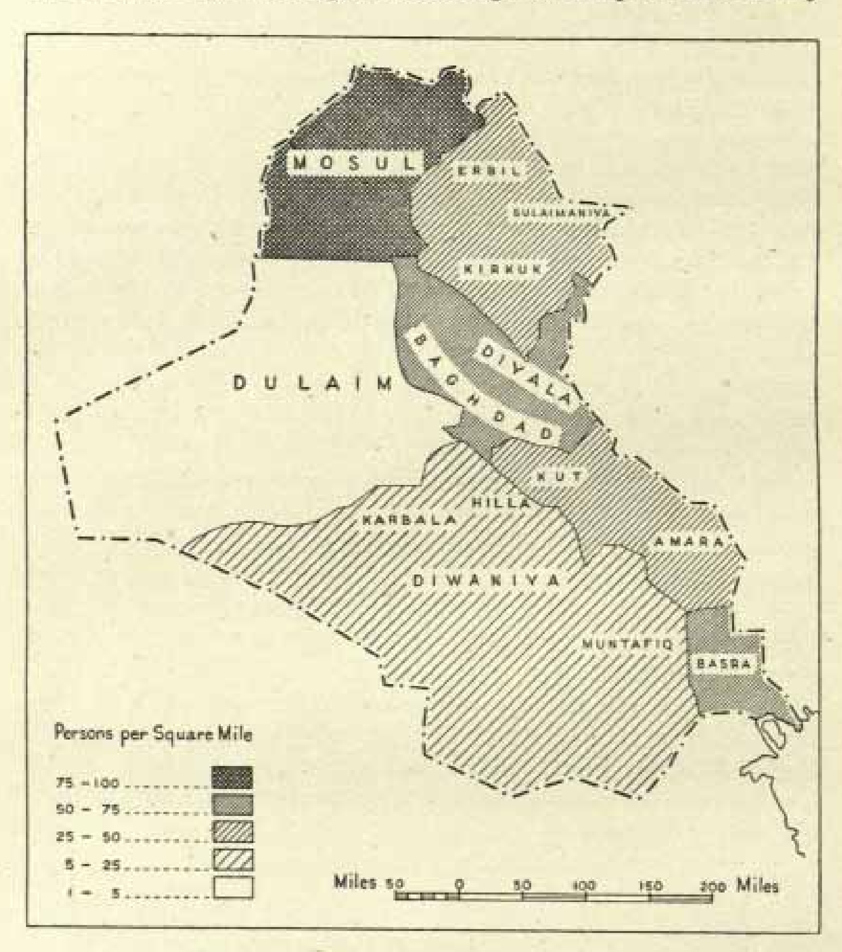


FIG. 60. *Density of population by provinces*

be noted that a much-quoted estimate, based on the statistics of 1930, made these figures 49 and 90 respectively. The number of able-bodied male workers in agricultural zones was then estimated at 500,000, to which a figure of 700,000 might correspond in 1944.

These statistics give the same general effect as the comparison of totals, but they stress the remarkable concentration of population in

four areas: in the canal zone around Baghdad; the riverain strip of date plantations in Basra province from Azair on the Tigris and Hammar on the Euphrates old channel down to the mouth of the

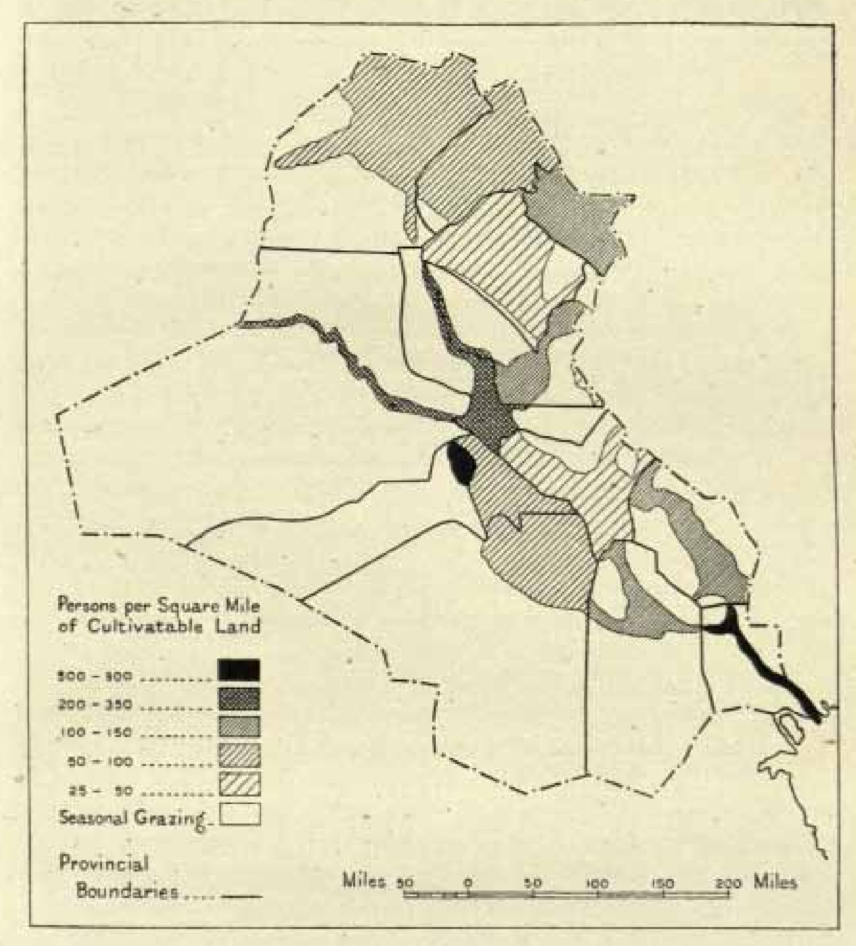


FIG. 61. *Density of population on cultivatable land*

Shatt al Arab; the Av-i-Tanjero valley of Sulaimaniya province; and locally along the Upper Euphrates in Dulaim province (fig. 61).

Urban and Rural Population (figs. 62–65)

Of the 11 sizeable towns Baghdad is the only great city, having a population of between 250,000 and 300,000. The remaining 10

fall into two groups as regards size: Basra and Mosul, with 70,000–100,000 inhabitants, and Amara, Hilla, Karbala, Najaf, Kadhimain, Kirkuk, Erbil, and Sulaimaniya with 15,000–40,000; the size of Karbala and Najaf is, however, very inexactly determined and is

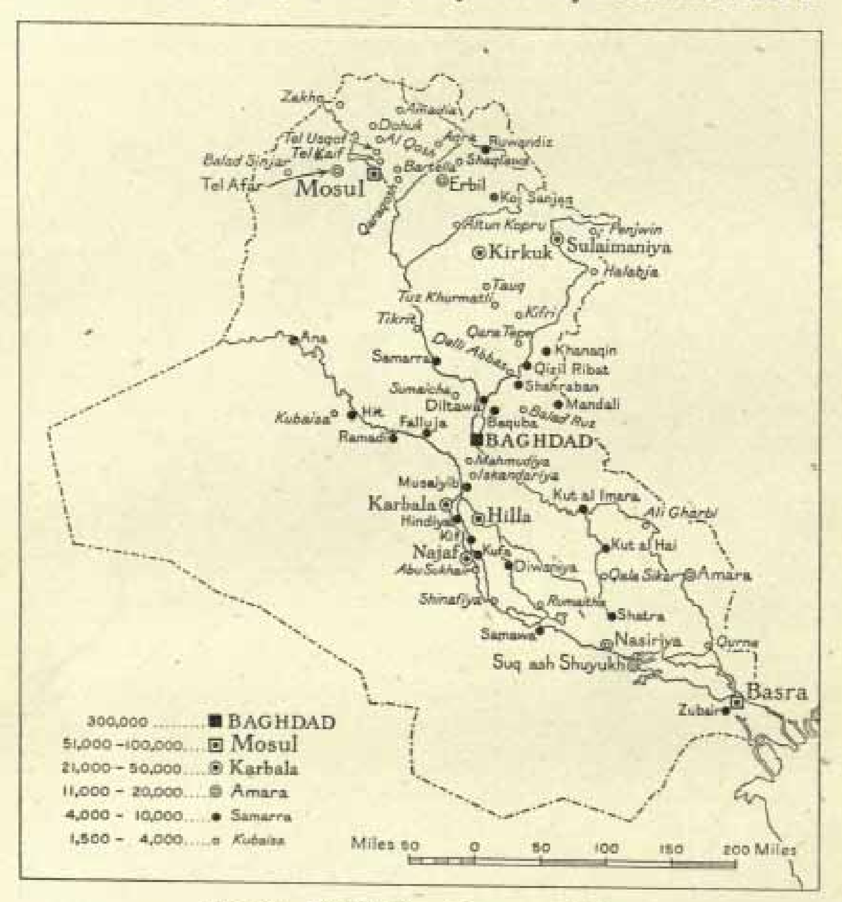


FIG. 62. *Distribution of towns and cities*

seasonally swollen by great throngs of pilgrims. The large towns are thus evenly spread through the country as the centres of its major divisions, though the function of some of them is peculiar (p. 349). A special feature in the agricultural regions is the number of small towns or large villages with a population of 3,000–15,000, in which the settled peasant population is gathered. In the large towns also a considerable proportion of the inhabitants are agricultural in occupa-

tion. It is thus difficult to distinguish between urban and rural elements. It is only at Baghdad that the occupations of the urban population resemble at all closely those of a European city, i.e. commerce, industry, and administration. Including those supported by religious endowments, probably not more than 600,000 are entirely urban in habit, or about one-sixth of the population.

The small towns are found in the Middle Euphrates, Upper Euphrates, and Diyala regions and evenly spread through the four northern provinces, particularly in the agricultural zones of the Assyrian plains (fig. 62). But in the mountain valleys of the two Zabs and of the Diyala the population, though never disseminated in isolated farmhouses, is grouped in much smaller villages (p. 342). Lack of local statistics prevent the detailed analysis of this phenomenon which is most noticeable in the Middle Euphrates zone (Musaiyib, Hindiya, Kifl, Diwaniya, Samawa, and other towns), and along the Diyala (Baquba, Diltawa, Shahraban, and Delli Abbas). Thus the present population repeats the tendency of the ancient Sumerians and Akkadians to gather into small towns in these very areas.

Another constant factor in the urban organization of Iraq is the presence of a great city at some point within the region where Euphrates and Tigris approach most closely together and are linked by canals. Before the effective unification of northern and southern Iraq the great city was Babylon on the Euphrates, but since Seleucid times it has been on the Tigris, consecutively at Seleucia, Ctesiphon, and Baghdad, all within a circle of 55 miles. Originally, indeed, the Moslem capitals were on the Euphrates at Kufa and Anbar, but inconvenience led to their early abandonment in favour of Baghdad (p. 243). The later attempt to move the capital north of the delta to Samarra was a failure (p. 244). The three capitals of the Assyrian plains, Mosul, Erbil, and Kirkuk, have been similarly persistent (Chap. XII); the break in the continuity between Assyrian Nineveh and the Sassanid town which preceded Moslem Mosul (perhaps 800 years out of 4,000) being due to extraordinary political factors (p. 219).

Nomads. It has been remarked that there is no absolute distinction between the settled peasantry and the shepherd nomads and that the rural population is extremely mobile (p. 336). Likewise the agricultural and the pastoral regions are intermingled. But there are certain great areas which are entirely given over to nomadism: the Southern and Western Deserts and the Jazira away from the immediate vicinity of the rivers and Jabal Sinjar; the drier lands between the Hilla canal and the Tigris, except along the Shatt al Gharraf; and

FIG. 63. *Villages and towns of northern Iraq*

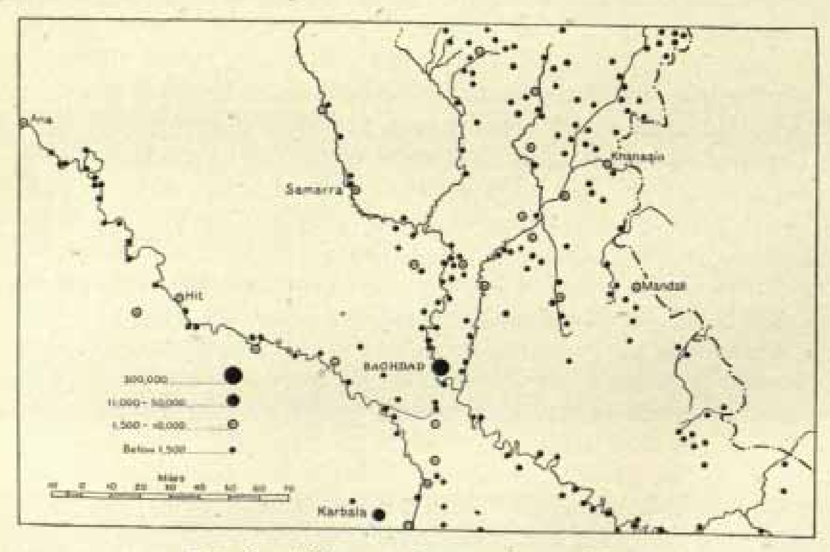


FIG. 64. *Villages and towns of central Iraq*

the lands east of the Tigris and south of the Jabal Hamrin, except for the riverain strip and the agricultural zone of the Diyala. North of the Jabal Hamrin, Arab shepherd tribes are found both west and east of the Tigris as far north as Mosul and the Little Zab, and reach

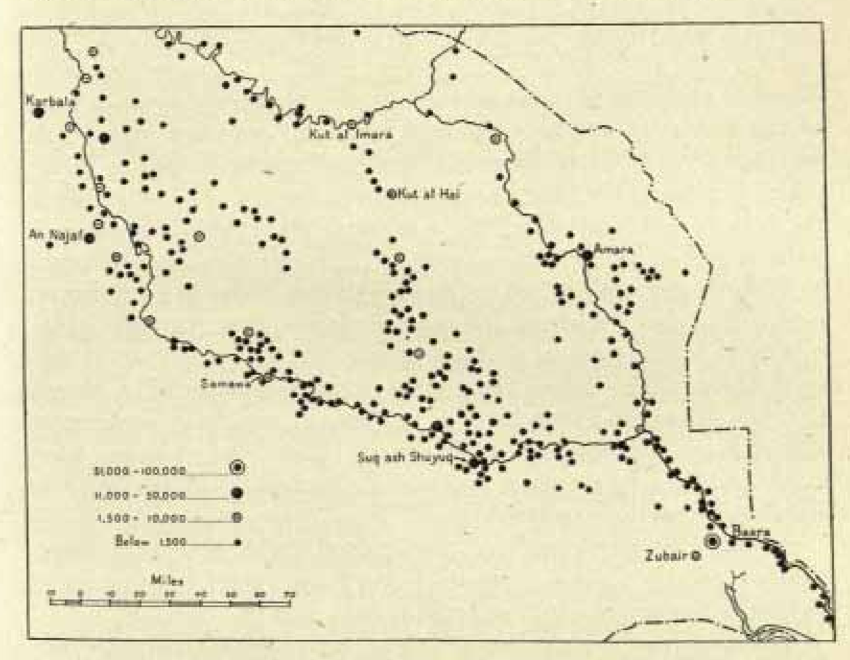


FIG. 65. *Villages and towns of southern Iraq*

sporadically to Jezireh Ibn Omar (Cizre) just beyond the Iraqi-Turkish border. This is the extreme limit of Arab penetration. In the Kurdish areas the situation is more complicated (p. 341), but semi-nomads are found throughout the foothills and Assyrian plains south of the Great Zab, and genuine nomads are found during the winter in the foothills north-east of Erbil and in the Diyala valley. The detailed distribution of nomadic tribes will be found below, p. 361 ff.

The total nomadic population has been estimated at 600,000 including 80,000 beduin, but these are figures of very doubtful meaning and value.

Increase of Population

Since the registration of births and deaths is very inadequately carried out, even in the towns, it is not possible to give any valid vital

statistics. The administrative estimates of the population since 1930 have shown a continuous and rapid increase despite local fluctuations:

Year	*Thousands of persons*
1930 . . .	2,824
1932 . . .	2,857
1935 . . .	3,560
1943 . . .	3,995

Between 1930 and 1935 the increase was evenly spread through most of the provinces, but between 1935 and 1943 practically the whole increase of 435,000 is accounted for by Baghdad province alone, which has nearly doubled its population in 8 years. For, although in the same period most other provinces have shown a steady increase or have remained stable, two provinces, Sulaimaniya and Diwaniya, have shown decreases which nearly cancel the increase in all the others except Baghdad. Whether the increase of Baghdad province is due mainly to influx from other areas is not easy to determine. There certainly is internal migration into the urban area of Baghdad. But it is arguable here and elsewhere that apparent increases reflect greater efficiency and ingenuity on the part of the census officials as well as an excess of births over deaths, and that the population of Iraq is more stable than has been supposed.

Provinces. In northern Iraq, Mosul, Erbil, and Kirkuk have shown steady increases from 1932 to 1943, but Sulaimaniya has fluctuated violently (103,000 in 1932, 184,000 in 1935, 142,000 in 1943).

In central Iraq, Baghdad has shown a great increase (*above*). Dulaim was stable; Diyala has been stable since 1935.

Of the Middle and Lower Euphrates provinces, Hilla and Karbala have shown a slight increase. Diwaniya has fluctuated wildly (341,000, 416,000, and 292,000 in the three latter estimates). Muntafiq has been stable.

Of the lower Tigris provinces, Kut and Basra have shown a steady and Amara a slight increase.

Statistics exist for births and deaths only at the cities of Baghdad, Mosul, and Basra. As the population of these cities are very imperfectly estimated no useful percentage increases can be worked out. The figures for a representative year (1937) were:

	Registered number of births and deaths		
	Baghdad	*Mosul*	*Basra*
Births . . .	9,483	3,438	1,709
Deaths . . .	7,599	2,086	1,775
	1,884+	1,352+	66−

For the nominal populations of the cities these figures give an excess of 6·2 and 13·5 births over deaths per 1,000 persons for Baghdad and Mosul respectively. The rate for Mosul city agrees well enough with the actual rate of increase (15 per 1,000) of the whole province between 1935 and 1943, but the figure for Baghdad is hopelessly inadequate. It is worth noting that anthropological observers state that in the Middle Euphrates and Diyala regions families of more than 4 children are uncommon.

Distribution by Tribe and Race

Arabs

The Arab population properly comprises all the inhabitants of southern Iraq, irrespective of religion, except some tens of thousands of Persians, Indians, and Kurds. In northern Iraq the Arabs are a minority confined to the Jazira, the riverain strip of the Tigris (p. 359 and p. 370), and the administrative districts of the Mosul plain and the northern foothills. The distribution of Moslem Arabs is described by tribes in this section (figs. 66–70), and that of the Christian Arabs by churches on p. 382.

Nomads, whether camel-beduin, or shepherd tribes, do not wander aimlessly through uncultivated regions. Each tribe or group of related tribes has its specific pastoral area or *dira* which is defined by certain well-known landmarks, such as water-holes, dry wadis, and other local topographical features (figs. 29–30). A tribe may share its dira by treaty with strangers or with dependants, and hostile tribes may invade one another's dira without warning. Among the semi-nomadic and fellahin population the notion of the dira is modified into that of the fixed tribal territory, the actual ownership of which may be in the hands of private individuals or the State.

Beduin of Western and Southern Deserts (figs. 29, 30, 66). The focal areas which control the winter–spring migrations are partly in Saudi Arabia and partly within Iraq: the Hajara region and the Nafud–Dahana sand desert, which have a plentiful vegetation in the winter months (pp. 115–117). After wintering there the beduin tribes travel north and north-east towards the Euphrates or north-west to summer pastures in Syria before the great heat begins; from April to August, when the *surra* fly abounds by rivers (p. 472), they pasture round wells, then move in late summer up to and across the Euphrates.

The *Amarat Anaiza* are ruled by this regime. In the autumn they are found as far to the north-east as the neighbourhood of Karbala, Najaf, and Baghdad. Their markets are in these cities and in the

small towns of the Euphrates valley. In winter they pasture in the Hajara or the Wadiyan districts, sometimes reaching Jebel Bishri in the Syrian Hamad. There they may use the dira of their kinsmen the Sba and Feddan Anaiza of Syria, but are on hostile terms with the Ruwal-

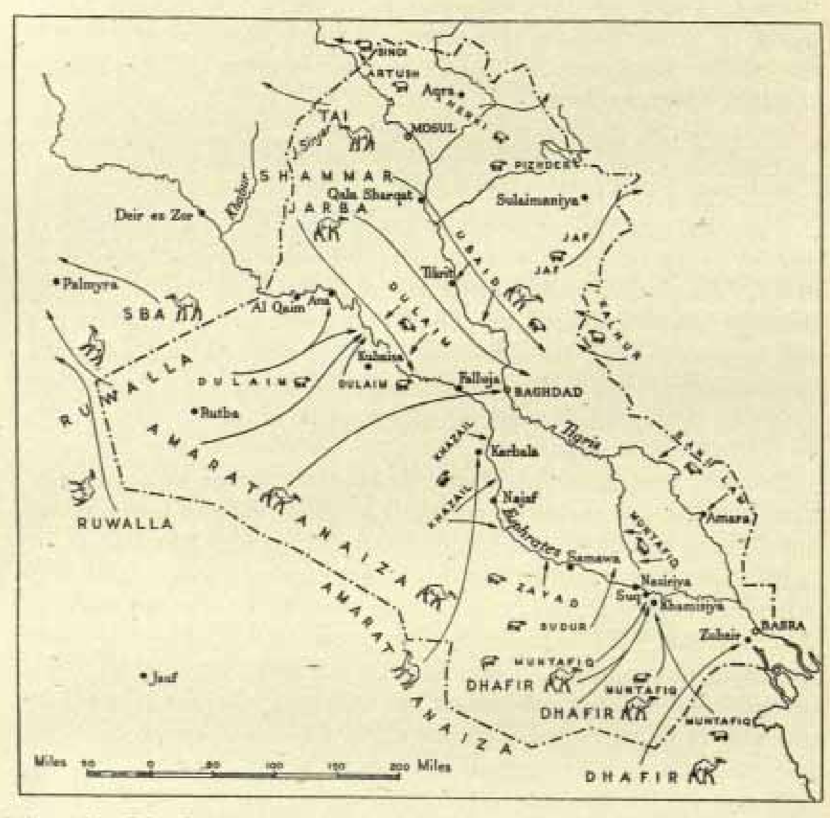


FIG. 66. *Distribution and movement of major nomadic tribes. Beduin tribes are indicated by a camel, shepherd nomads by a sheep*

la Anaiza, who may invade the Amarat dira in the region of Rutba, and also with the Shammar both of Iraq and of Saudi Arabia. The Amarat number some 5,000 tents in two major sections, Jabal and Dahamsha, which are ruled by paramount shaikhs drawn from the Hadhdhal family and the Mijlad family respectively; the attempt of the British to make the Hadhdhal shaikhs paramount over both branches was not very successful and caused a temporary secession of the Dahamsha to Saudi Arabia in 1927.

The *Dhafir* pasture in the Dahana sands of Arabia in winter and move north-east in summer along the Batin depression towards the neighbourhood of the Lower Euphrates between Nasiriya and Zubair; though a camel tribe, the purity of their beduin descent is in dispute and also they have not the independence of the Amarat, being closely associated with the shepherd tribe of Zaiyad (p. 365). They have been much weakened by internal strife between the two chief shaikhly families (Ibn Suwait and Aba Dhra), by the secession of sections to Saudi Arabia or to Anaiza protection, and by the Akhwan raids of 1922–1925 (p. 318), so that by 1930 they could only muster some 700 tents.

The *Shammar Jarba* of the Jazira may in some seasons move through the dira of the Amarat to the Hajara and Nafud. In the Jazira their dira is bounded by the Jabal Sinjar on the north, the Syrian Khabur on the west, and the Tigris and Jabal Hamrin on the east, though in times of bad pasture they may reach the Diyala. They used to try to exact *khua* or dues from all the shepherd tribes within this zone. Their market towns are Balad Sinjar, Tel Afar, Qala Sharqat, and Mosul. The Shammar Jarba number over 8,000 tents in three major tribal sections which recognize the authority of the Bait Mohammed family; the prestige of Ajil al Jauer, the present paramount shaikh, is greater than that of the paramount shaikh of the Syrian or West Shammar. Their relations with the Saudi Shammar are now excellent, and in 1935 two Anaiza tribes of Syria, the Feddan and Sba, tried to attach themselves to the Shammar Jarba rather than to their Amarat kinsmen.

In southern Iraq another group of Shammar, the *Tuman Shammar*, are limited to the region between the Jal al Baten ridge and the Euphrates below Najaf, within the dira of the Amarat, when they are not with their kinsmen, the Shammar Jarba, or the Shammar of Saudi Arabia.

Shepherd and Settled Tribes of the Upper Euphrates (figs. 30, 66, 67). The *Dulaim*, who number over 19,000 tents in ten large sections, are the great tribe of the Euphrates between Al Qaim and Falluja. There are both nomadic and settled sections. The nomads range either side of the Euphrates between Ana and Falluja, north-east towards Tikrit, and west along the Wadi Hauran and towards the depression of Jumat al Qaara. The Albu Nimr and Jaghaifa are the chief nomad sections; but there is no absolute distinction of the sections in this respect, and the nomads have no social or political superiority. Many sections are mainly agricultural, and there is a constant tendency to

settlement along the Saqlawiya canal. Several sections are not Dulaim by origin, for the tribe has attracted sections from other groups, notably the Zoba, which have now settled along the canals south of Falluja. Jumaila and Albu Isa are the easternmost Dulaim.

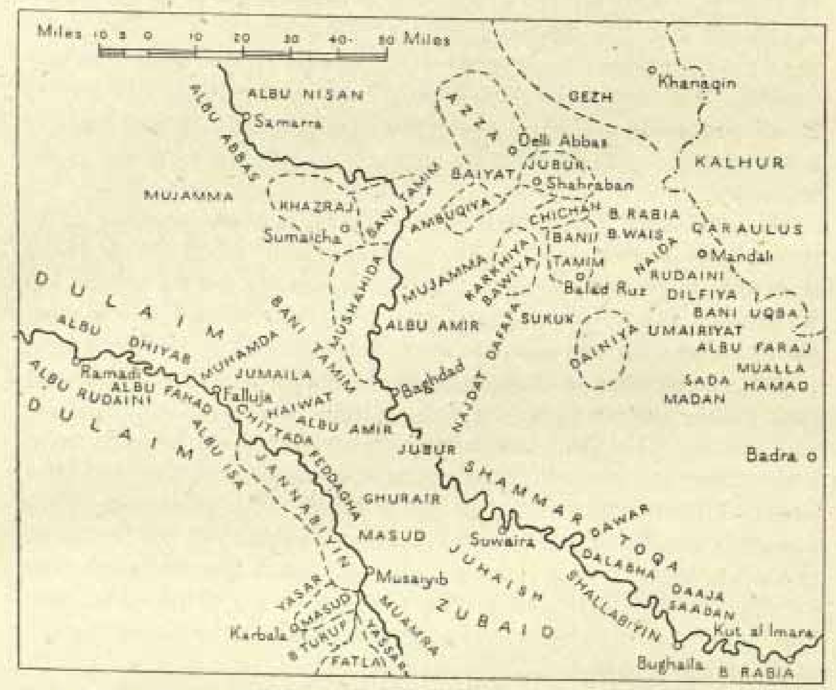


Fig. 67. *Settled and semi-settled Arab tribes of the Upper Euphrates, Baghdad–Diyala zone, and Tigris from Samarra to Kut al Imara*

Distinct from the Dulaim tribesmen are the town tribes. The *Bani Kubaisa* of the desert market-town of Kubaisa, who are mostly merchants, are noted cowards, but the inhabitants of Rawa, opposite Ana on the Euphrates, have a reputation as fighting men and formerly as brigands.

The settled tribes in the canal zone south and east of Falluja are described in the section *Baghdad–Diyala* (p. 368).

Shepherd Tribes of Middle and Lower Euphrates (figs. 8, 9, 66–69). The nomadic tribes of the Euphrates from Falluja to the Hammar lake are not comparable in importance with the Dulaim, nor do they form compact confederations, being generally the nomadic sections of preponderantly settled agricultural tribes. Nomadic sections of

Khazail and associated tribes, particularly *Bani Salama* and *Ghazalat* (p. 367), range west of the Euphrates, from the Darb Zubaida to the Wadi al Ubaiyidh, within the dira of the beduin Amarat. South of Samawa and the Hindiya channel the *Zaiyad* section of the Bani Huchaim, formerly some 2,000 tents strong, penetrate the southern desert. So do the *Budur*, whose home territory north of the Euphrates is on the unirrigated lands between the cultivated zones of the Middle Euphrates and the Shatt al Gharraf; their winter migration is within the dira of the Dhafir. They are a powerful tribe of some 900 tents who were formerly dependent on the Dhafir and Muntafiq. But in 1910, in alliance with the Zaiyad, they broke their bonds after a fierce struggle. Since then they have been independent, and the Dhafir have been in close alliance with the Zaiyad. Other Muntafiq tribes which move to the Hajara include the Albu Sali of the Bani Malik confederation and some sections of the camel-owning Al Humaid (p. 368). The most easterly shepherd nomads of the Euphrates are the *Shuraifat* and *Juwarin*, small Muntafiq tribes whose dira is south-west of the Hammar lake. They move away from the marshes in the flood season and in times of plentiful rain may wander as far as the Batin pastures or the Hajara.

Settled and Semi-settled Tribes of Middle Euphrates (figs. 8, 9, 68). This region, including the territories watered by the Hindiya and Hilla channels of the Euphrates, is the most turbulent tribal area in Iraq. It is inhabited by a complex mass of some fifty-five tribes or tribal sections which are mostly independent and do not form coherent groups like the great tribes of the Upper Euphrates and of the Tigris. In this and the Diyala region the tribes are more static than elsewhere. The tribesmen are generally cultivators and stock farmers, settled or semi-settled, living in villages of mud-brick or reed huts or less frequently in tents; the nomadic tribes and sections are generally on the west bank of the Euphrates (Hindiya channel). The tribal sub-section and the village shaikh in his mud-brick tower usually form the effective units in the settled districts and in many tribes the federal shaikh has little authority. But the following major groupings can be distinguished, each of which may contain 2,000–2,500 families, or 7,000–11,000 persons: Khazail, Fatla, Bani Hasan, and Bani Huchaim. Other less well-defined groups of equal or smaller size exist, usually in a vague relationship of mutual alliance or hostility, such as the Jubur and Albu Sultan, and many small groups of 500 to 1,000 families.

The *Bani Hasan* live mostly west of the Hindiya channel, between

Karbala and Kufa, and include some semi-nomadic tribesmen among their numerous and very independent subsections. The *Khazail*, whose dira west of the Euphrates has already been mentioned (p. 365), are the principal tribe of the area between the two channels from Kifl



FIG. 68. *Settled and semi-settled Arab tribes of the Middle Euphrates zone*

to Shinafiya and Rumaitha. They also range into the desert east of the Hilla channel. They are cultivators, stock-breeders, and shepherds, semi-nomadic and semi-settled. Their allies include the Shibil and the Chabsha. The *Shibil* inhabit the west bank of the Hindiya channel in the region of Shinafiya, on the desert edge, and may also be found scattered through Diwaniya province. The Khazail were formerly strong enough to exact dues from the Amarat and Shammar beduin who came for summer pasture to Khazail territory;

all the tribes between Musaiyib and the Bani Huchaim belonged to their confederation, but many are now independent, such as the partly nomadic *Ghazalat*, and farther south the *Chabsha* tribes. The latter live astride the Hindiya channel, from Gharab (12 miles below Shinafiya) to the borders of Bani Huchaim territory; the partly nomadic *Bani Salama* are their most important tribe (p. 365).

The *Bani Huchaim*, except for the shepherd Zaiyad (p. 365), are a confederation mostly of settled tribesmen inhabiting the lower reaches of the various branches of the Hilla and Hindiya channels and canals between Rumaitha, Chamcha (17 miles above Samawa), and Darraji (30 miles below Samawa). They number about a dozen tribes, often mutually antagonistic and always reluctant to admit the authority of any supreme shaikh, but took a prominent part in the 1920 rebellion and the risings of 1935–1936.

The *Fatla* and the tribes associated with them, the *Jaliha* and *Qurait*, live around the upper reaches of the Hindiya channel between Hindiya and Kifl. The Fatla are settled agricultural and cattle-breeding tribesmen, but are warlike and played a great part in the insurrections of 1920 and 1935–1936 under Shaikh Abdul Wahid. Two sedentary tribes of the Hilla branch, the *Jubur* on the right bank and the *Albu Sultan* on the left between Hilla and the Daghghara barrage, have almost lost their cohesion and broken up into separate sections, like the Bani Huchaim.

Settled and Semi-settled Tribes of Lower Euphrates (figs. 9, 69). The Muntafiq cover the large region from the lands irrigated by the Shatt al Gharraf below Qala Sikar eastwards to the Tigris marshes of the Bani Lam (p. 371) and southwards to the southern shores of the Hammar lake west of Kabaish. They are predominantly settled and semi-settled fellahin who do not readily abandon agriculture, but also contain tribes and sections of nomadic and semi-nomadic shepherds in the unirrigated parts of their territory. Interspersed among them in the region of permanent marsh are the Madan or true marsh Arabs. The Muntafiq are not a tribe or a single tribal confederation but a group of confederations originally embracing at least fifty tribes united and ruled by the Shabib-Sadun family (p. 261); the word *muntafiq* indeed means confederated. Many tribes and tribal groups, however, have ceased to recognize the authority of the Sadun shaikhs and the confederacy has been gradually resolving into its component parts since about 1860 (p. 267). The last occasion when the Muntafiq acted together under Sadun leadership was when Ajaimi called out the tribesmen to help the Turks in 1914; even then not all

the tribes co-operated (p. 274). Many of the leading members of the Sadun family, though wealthy landowners, still keep herds of camels and lead the nomadic life.

The main confederations of Muntafiq tribes are the Ajwad, the Bani Malik, and the Bani Said. The *Ajwad* include the cultivating tribes inhabiting either bank of the Shatt al Gharraf between Qala Sikar and Shatra, grouped in the *Bani Rikab* on the west and the *Al Humaid* on the east of the river; some sections of the latter are camel-owning nomads. Southward between Shatra and Nasiriya these are succeeded on the 'tail' of the Gharraf by a number of separate tribes and minor confederations (Bani Zaid, Khafaja, and Azairij). Muntafiq, including Budur (p. 365), may be found west of Nasiriya along the Euphrates up to Darraji; the Khafaja are semi-settled shepherds with large flocks who could raise 3,500 men but may revert to cultivation with the improvement of irrigation, as the Azairij have done. The Bani Zaid, a richer tribe on better lands, count some 2,500 men; they are related to the Bani Zaid Dachcha of the Euphrates.

The *Bani Malik* confederation includes the wealthy rice-growing tribes along the western and north-western shores of the Hammar lake with Suq ash Shuyukh as their centre. Among them are *Ahl al Kut*, rice-growers west of Suq ash Shuyukh, the *Bani Khaiqan*, a large tribe between Suq ash Shuyukh and Hammar village, and the partly nomadic Albu Sali, who live north of the Bani Khaiqan and whose shaikh is sometimes regarded as head of the confederation. The southernmost Muntafiq tribes south-west of the Hammar lake are shepherd and nomadic tribes which seem to be connected with the Bani Malik confederation (p. 365).

The third major confederation, the *Bani Said*, are mainly semi-nomadic shepherd and stock-breeding tribes in the deserts and wastes between the irrigated lands of the Gharraf and the Tigris swamps.

The territory between the old Euphrates channel and the Hammar lake from Qurna up to Kabaish is held by several tribes such as *Al Saad* and *Al Jazair*, which had thrown off their allegiance to the Muntafiq before 1914. Independent shaikhs in mud towers may hold great authority in this area. Marsh Arabs or Madan are found intermingled with the cultivating tribes of the Hammar region.

Baghdad–Diyala Tribes (figs. 6, 13, 67). This well-watered region of central Iraq, which for convenience is taken to include the country between Falluja and Musaiyib on the Euphrates, Shahraban on the Diyala, and Mandali on the Persian frontier, includes no great tribe or tribal group but a number of small tribes and the shattered remnants

of several tribes which have had a famous history. In the irrigated lands the tribesmen are mostly settled fellahin, and in the desert hinterland semi-settled shepherds. In the zone of the Saqlawiya and Abu Ghuraib canals the settlement of shepherd nomads (Dulaim)



Fig. 69. *Muntafiq tribes of the Lower Euphrates and tribes of the Lower Tigris*

and even beduin (Amarat, Shammar Jarba) as fellahin is continuing rapidly and large villages are springing up.

Excluding the sections of the Dulaim and Shammar Toqa and of the beduin tribes which overlap into this region (fig. 66), the more notable of the tribes are Jannabiyin, Zubaid, Bani Tamim, Zoba, and Azza.

The *Jannabiyin* are an agricultural tribe mainly on the right bank of the Euphrates between Falluja and Musaiyib. The *Zubaid*, a

cultivating and stock-breeding tribe who at least till recently were all tent dwellers, live in the region between the Euphrates (Hilla channel) and Tigris north-east of Musaiyib; formerly they controlled the right bank of the Tigris from Baghdad to Bughaila, from which they seem to have been displaced in recent years by the Juhaish, who may, however, be an independent Zubaid section. Several other of their sections, such as the Jannabiyin, are now independent. They themselves belong by origin to the Bani Tamim; some of their sections are Sunni, as are the Jannabiyin.

The *Bani Tamim*, who are found in several localities of this region and have lost their tribal cohesion, are the remnants of one of the earliest invasions of the Moslem and possibly the pre-Moslem era. They own lands above Baghdad watered by wells near the old Dujail canal and Sumaicha: with them may be mentioned their western neighbours the *Khazraj*, an agricultural tribe in the Dujail area above Baghdad near Balad, whose history also reaches to pre-Moslem times.

The *Zoba* are a settled cultivating tribe on the lands watered by the Saqlawiya and the Abu Ghuraib canals. The tribe seems to have been completely disintegrated; the sections on the Saqlawiya follow the leadership of the Dulaim; others, such as the *Chittada* and *Feddagha*, have become independent units. Some sections are Shia, others Sunni.

In the Diyala region there are many small settled tribes, but none of any importance except the *Azza* in the country between the Adhaim and Delli Abbas on the Khalis canal, who are semi-settled shepherds and peasants.

Shepherd Nomads and Settled Tribes of Tigris (figs. 9–13, 67–70). From north to south the notable tribes of the Tigris are Jubur, Ubaid, Shammar Toqa, Bani Rabia, Bani Lam, and Albu Mohammed. The *Jubur* are settled tent-dwelling fellahin on either side of the Tigris between the Great Zab and the Jabal Hamrin. Once a large tribe, they were broken by the Syrian Ogedat and have now no connexion with their kinsmen, the Jubur of the Syrian Khabur.

The *Ubaid*, whose lands are east of the Tigris between the Jabal Hamrin and the Adhaim, are a semi-nomadic tent-dwelling tribe, partly agricultural and partly camel-breeders, though not camel nomads. Of recent years the declining demand for camels has increased the tendency towards settlement. They are the remnant of a tribal confederation which was driven from the Jazira by the Shammar (p. 261), and they have a feud with the Azza of the Diyala region.

The tribes of the right bank above Baghdad have been described in the preceding section.

The *Shammar Toqa* occupy lands on the left bank of the Tigris, from Baghdad to Bughaila (Naamiya). They are semi-settled, mainly tent-dwelling, peasants, but also breed cattle and camels and sometimes trek to the Persian border in spring. Their tribe is a branch of the northern Shammar (p. 363), though Shia by religion.

The lands of the *Bani Rabia* are on both banks of the Tigris, between Bughaila and Shaikh Saad, Kut al Imara being their chief town. They are a settled agricultural tribe, but also breed sheep and cattle.

The *Bani Lam* are the most powerful tribe of the Tigris. They occupy a large region between the Tigris, from Shaikh Saad to Amara, and the hills along the Iraqi-Persian frontier, and also hold the marshlands along the right bank of the Tigris in this sector. They are partly a nomadic and partly a semi-settled people dwelling in tents or reed huts. Though predominantly agricultural they have large flocks and herds, and retain the nomadic tradition of migration to the frontier hills in the winter and to the adjoining plains of Persian Arabistan (p. 317).

The *Albu Mohammed* are found on both banks of the Tigris below the Bani Lam and as far south as Azair. They reach east to the Hawiza district of Arabistan and westwards to the limit of the marshes, where they adjoin the Muntafiq. They breed large herds of buffalo and cattle, and grow rice and maize. Their way of life is semi-settled rather than nomadic, and they live in reed huts similar to those of the Marsh Arabs proper.

Along the Shatt al Arab from Qurna to Fao, where the date cultivators are the chief element in the population, the tribal system has virtually died out except among the Iraqi *Muhaisin* who belong to the Chaab of Persian Arabistan. Muntafiq Arabs and Marsh Arabs visit this area as seasonal labourers for the date harvest.

The true Marsh Arabs, Madan, are found both among the Tigris marshes of this section and those of the Hammar lake. They form five tribal divisions of which the Fartus is the most prominent.

Kurds

Northwards the Kurds extend to the Turkish frontier, beyond which is Turkish Kurdistan; in the south the limit is the neighbourhood of Qizil Ribat and Khanaqin, though Kurds also exist round Mandali (fig. 70). In the west the Kurds have penetrated from their mountain home far into the Assyrian plains, particularly in the provinces of Kirkuk and Erbil where Kurds and Kurdish ways dominate a region formerly held by Arabs and Turkomans. Their south-

western limit seems to be marked by the old route from Qizil Ribat on the Diyala through Kirkuk to Altun Kopru on the Little Zab and thence by the Jabal Qara Chauq bordering the Qaraj plain. North of the Great Zab in the Mosul plain they reach west to the Khazir Su, and north of Dohuk they cross the Tigris (figs. 23, 24, 70–71).

The total number of Kurds is not directly revealed by the census estimates, which do not distinguish the inhabitants of Iraq by race, but it may be approximated by subtracting the number of non-Moslem inhabitants from the total population of Erbil, Sulaimaniya, Kirkuk provinces,[1] and of Mosul province except Mosul city and the districts of Mosul, Sinjar and Tel Afar. The Kurdish population of the latter areas, which is not great, may be set against the Turkoman and Arab elements of Erbil and Kirkuk provinces. The result gives a total Kurdish population of 740,000, of whom 257,000 live in the restive mountain districts from the Great Zab to the upper Diyala, which have formed the core of autonomous movements in Kurdistan (Aqra, Zibar, Ruwandiz, Rania districts, and Sulaimaniya province). The rest live in the Assyrian plains and hills and in the Khabur basin.

Within the plains, and also in the broad valleys around Sulaimaniya, the former Shahrizor district (p. 262), there are considerable areas where the Kurds have abandoned their tribal organization. Elsewhere the system persists with varying strength, but it differs greatly from that of the Arab tribes both in its federal and its territorial aspects. There are few Kurdish confederations and few large tribes in Iraq. The authority of paramount chiefs is slight and tribal sections fight freely together. The tribes themselves, except some of the shepherd tribes, are generally small compared to Arab tribes, often numbering their families by the hundred rather than the thousand. In the inaccessible mountain region drained by the two Zabs fragmentation is considerable, and there are many very small and mutually hostile tribes living in isolated valleys, tribal sections having often become separate tribes, a process which is still at work. Though all Kurds have the habit of seasonal migration to some extent (p. 344), the mountain tribes are generally agricultural and settled, the semi-nomadic shepherd tribes being found in the wider spaces of the Assyrian plains and foothills. Only two tribes, the Herki and the Jaf, are fully nomadic and make considerable migrations between the Persian mountains and Iraq, though sections of the Pizhder have considerable range. Territorially, though each tribe has its own region, the notion of the *dira* (p. 361) is not well established because few Kurdish tribes

[1] And also the Khanaqin district of Diyala province.

are on sufficiently good terms with their neighbours to respect their boundaries. The more powerful shepherd tribes often exact grazing rights on the lands of agricultural tribes without payment (p. 377).

The following account summarizes the more notable tribes in the

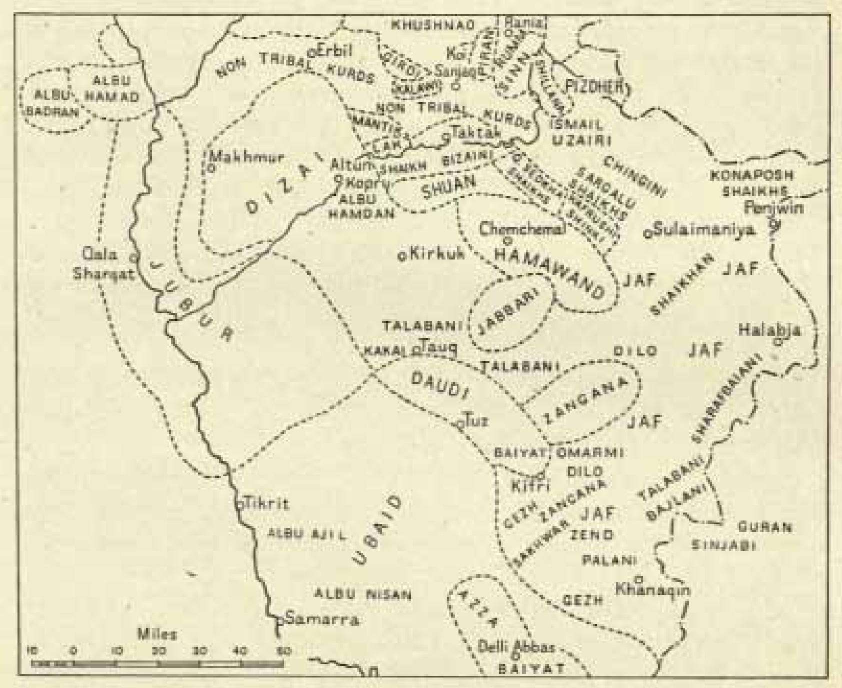


Fig. 70. *Tribes of southern Kurdistan and Arab tribes of the Upper Tigris*

major natural divisions of the country (figs. 70–71), but far less is known even to-day about the Kurdish tribes than about the Arab.

The Diyala Basin (figs. 23, 25, 70). From Qizil Ribat in the south to Halabja and the Avroman mountains in the north the western flank of the Diyala basin is the grazing-ground of the vast flocks of the predominantly nomadic *Jaf* tribe, many thousand tents strong, who in summer often cross the Persian frontier beyond Penjwin to the districts of Marivan and Baneh. The Jaf have also acquired agricultural lands in the south around Qizil Ribat, and in the Halabja plain where Halabja is a Jaf town. Authority was formerly divided between the leader of the nomadic elements and the town aghas, especially of the Begzada family at Halabja, of whom the lady Adela Khanum was the most famous (p. 341); but the Begzadas are now merely rich

landowners. The nominal unity of the twenty-two sections of the tribe is much disturbed by bitter blood-feuds which render united action almost impossible. The seasonal migration to Persia was interrupted by the action of the Persian Government in 1930.

Other tribes, mainly agricultural, exist in this region, such as *Talabani* and *Zend*; the former are really the miscellaneous tenants of the landowning Talabani family, but the Zend are the remnant of a Persian tribe. East of Diyala are the *Sharafbaiani*, a semi-nomadic tribe containing a former section of the Jaf; they live north of the Abbassan stream between the Diyala and the frontier. The sedentary *Bajlani* to the south of the Abbassan are another miscellaneous collection of peasant Kurds, partly Persian and partly Turkoman by origin. The Persian *Kalhur* migrate into this region and use Khanaqin as their market centre. In the Av-i-Tanjero valley the peasantry is non-tribal and is controlled by the town aghas, shaikhs, and landlords of Sulaimaniya.

Outside this region, along the Ab-i-Naft and amid the small Arab tribes round Mandali, are the intrusive *Qaraulus*, a small sedentary Shia tribe of peasants and stock-breeders (fig. 67).

Kirkuk Plain and Adhaim Basin (figs. 23, 70). The dominant tribes are Shuan and Hamawand. Both are semi-sedentary shepherd tribes with subordinate agricultural holdings. The *Shuan* have lands south of the Little Zab between Taktak and Chemchemal; they number some 2,000 families and are good farmers. They have an agreement of perpetual friendship with the *Hamawand*, who though few in number are one of the most spirited and warlike of Kurdish tribes (photo. 139). The Hamawand have been well led by their aghas, and are also famous brigands; their stronghold is the Bazian valley of the Tauq Chai, but their lands stretch west of the Bazian hills to Shuan country north of Chemchemal. The sedentary peasants (Kafrushi, Shinki sections) of the Bazian valley are reckoned as Hamawand, but the pure Hamawand sections (1,000 families) are shepherds. The sedentary *Zangana* Kurds (500 families) in the rolling hills between the upper Aq Su and the Diyala form two hostile groups, Khan Zur (Ibrahim Khanji) being their original centre. The semi-nomadic *Daudi* tribe (1,000 families) in the plains east of Tuz Khurmatli and Tauq is noted for its mules and the coherence of its tribal system.

The *Shaikh Bizaini*, a small sedentary tribe on both banks of the Little Zab, separate the Shuan from the river; by origin they are Khushnao Kurds from the Shaqlawa region (p. 376).

Erbil Plain (figs. 24, 71). Dizai and Girdi are the notable tribes.

The semi-nomadic *Dizai* occupy the rolling downs west of Erbil and Altun Kopru almost as far as the Tigris where their neighbours are the Arab Jubur (p. 370). They number 30,000 folk and can provide 5,000 warriors, of whom 600 are mounted. A large number of the non-tribal Kurds of the Erbil plain are Dizai by origin. The Dizai have been described as the most intelligent and progressive of the Iraqi Kurds, and the authority of their aghas over the commoners is said to be on the wane; there is no paramount agha and the sections fight amongst themselves. Makhmur, founded when they drove the Jubur off the Jabal Qara Chauq, is one of their chief villages.

The *Girdi* are a warlike tribe with some fifteen villages on the northern fringe of the Erbil plain, south of the Bastura Chai. They successfully checked the expansion of the Dizai and usually follow an opposite policy. Another group of Girdi live in the district of Koi Sanjaq east of the upper Shalgha and south of the Sefin Dagh; but most of the villagers of Koi plain are the tenants and dependants of the town aghas of two rival families, Hawaiza and Ghafuri, in Koi Sanjaq.

North of the Bastura Chai there are some sections of the Surchi, and in winter the Herki nomads appear here (pp. 376–377).

Mountain Basin of Little Zab (figs. 26, 71). The inhabited core of this region consists of the Rania and Qala Dizeh plains and the southern tributaries of the Little Zab. The inhabitants of the latter have come for centuries under the influence of Sulaimaniya and their tribal organization is weak, but the Rania plain, bounded in the north-west by the valleys of the Khushnao (p. 376), contains several small tribes, the *Piran*, *Rumm* or *Rumak*, *Sinn*, and others. The *Pizhder* tribe, said to be one of the strongest of all Iraqi Kurdistan, has land round Qala Dizeh, the seat of the paramount chief, and in the hills to the south-east along the Little Zab (photo. 140). Many sections are nomadic and range in summer into Persia as far as Sardasht; the Persian government tried to regulate this migration in 1927–1929. The small but warlike *Piran* tribe, which belongs to the Persian Bilbas confederation by origin, also makes this summer migration. In the inaccessible hills between the Qala Dizeh plain and the basin of the Great Zab there are the *Ako*, a fierce tribe containing several loosely co-ordinated sections dispersed in 40–50 villages.

Mountain Basin of Great Zab (figs. 27, 71). This rugged region, which has only recently been penetrated by a modern road, contains the most warlike and independent of the Kurdish tribes, though few are strong in numbers. The more notable are the Surchi, Khushnao, Baradost, Zibari, and Barzan. These are settled agricultural folk for

whom the breeding of sheep is a secondary consideration, but the great nomadic tribe of Herki also visits this area.

The *Surchi* control the entrance to the country, living west of the Spilik pass, between the Great Zab and Berat Dagh north-westward

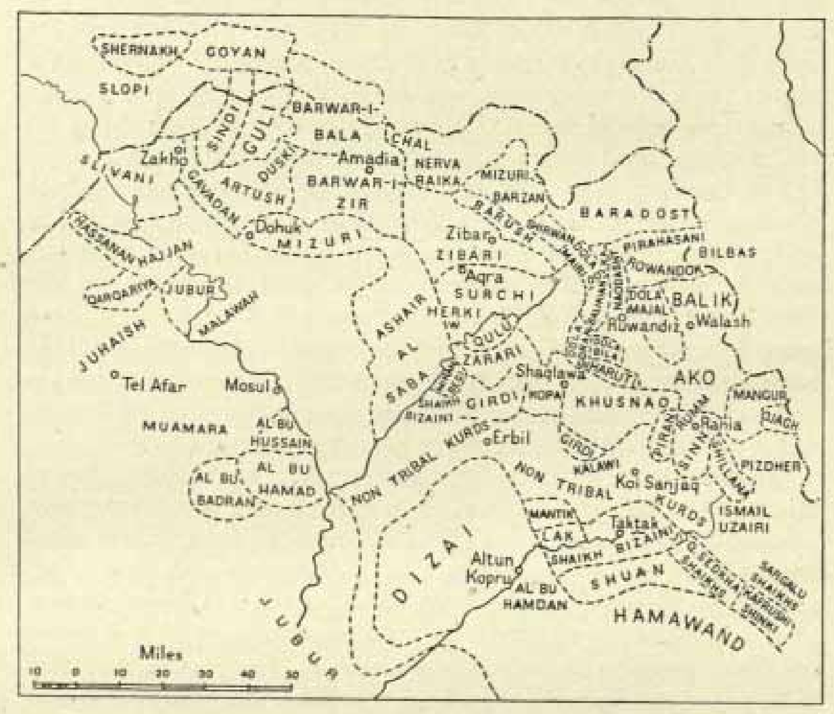


FIG. 71. *Tribes of northern Kurdistan and Arab tribes around Mosul*

to Aqra, and also south of the Great Zab towards the Bastura Chai and in the plain of Dasht-i-Harir. The aghas of the northern sections are drawn from a shaikhly family, but in the south the tribal organization is normal. They were very troublesome in the disturbances of 1919–1920.

The *Khushnao* are to the south of the Ruwandiz road in the valleys between the Sefin Dagh and Makok Dagh, and thus hold the watershed of the two Zabs in this region. They are a federation of three tribes, two of which are intermingled in the villages, and number about 10,000 in all. Their paramount agha has a vague suzerainty and lives at Shaqlawa.

In the Rubar-i-Ruwandiz and its side valleys around Ruwandiz are

several small tribes and also non-tribal elements controlled by town aghas. At the head of the northern tributaries of the Rubar-i-Ruwandiz and northward to the Barasgird valley and Persian frontier are the *Baradost* tribe and their former sections, now independent, the *Rowandok*, and *Pirahasani* (Pirastini). The *Shirwan* hold the valleys of the Rukuchuk (Barasgird) below and to the west of the Baradost lands, and to the east of Chia-i-Shirin range. The small sections of the Shirwan retain their coherence better than the Baradost. The two together may number 8,000.

The *Balik*, at the head of the Rubar-i-Ruwandiz and astride the Ruwandiz road, are a tribe divided into three sections, with some sixty small villages of which Rayat and Walash are the chief; the agha of Walash is regarded by the Government, though not by the sections, as the paramount chief (photo. 39).

South of the Rubar-i-Ruwandiz the passes to the Pizhder plain in the basin of the Little Zab are controlled by the small *Mangur* tribe, which contains nomadic elements that go for summer pasture to the Vasneh Alp in Persia.

On the Great Zab above its junction with the Rukuchuk the *Zibari* to the south-west and the *Barzan* Kurds to the north-east of the Zab have a perpetual feud. The Barzan sections are by origin Zibari Kurds who have been dominated by the truculent shaikhs of Barzan village. Together with the Shirwan these are known as *diwana*, or the 'mad folk'.

In late autumn the *Herki*, a purely nomadic tribe whose summer quarters are in Persia, south of Lake Urmia, move down the Rubar-i-Ruwandiz to pastures in the territory of the Surchi between Aqra and the Bastura Chai, bringing great flocks of sheep with them. They are a dark-skinned people and very hardy, numbering about 20,000, of whom some 8,000 visit the Bastura and perhaps as many again reach Aqra and the Erbil plain. They have free grazing rights in certain areas and pay dues in others. Their tribal organization, which contains at least four sections, is intact. In 1938 the Persian Government tried to stop the annual migration.

From Upper Zab to Tigris (figs. 27–28, 71). Northern Kurdistan, west of the Rubar-i-Shin, becomes progressively more open and the inhabitants, who are mostly settled cultivators, have been dominated by the Kurdish tribes of Hakâri from beyond the Turkish frontier.

The *Raika* and *Nerva* are small tribes between the Rubar-i-Shin and the Great Zab, formerly dominated by the Oramar tribe of Turkish Kurds. The *Barwar-i-Bala* who populate the tributary valleys

of the Khabur and Zab north of the Chia Matin hills, and the *Barwar-i-Zir* who inhabit the basins of the rivers south of the Chia Matin, have no paramount chief; the Bala sections have retained more of their tribal organization. There are sedentary Nestorian non-tribal peasants in the Barwar-i-Bala district. The *Misuri* live in the upper Gomel Su valley east of Dohuk. In the foothills and plains of the lower Khabur nomadic elements reappear, notably among the *Sindi* in the Zakho plain, and the *Artush*, a small tribe in the foothills south of the Khabur between Zakho and Dohuk. Their nomadic sections together total about 6,000. In past times the Turks have hindered their summer migration to the Turkish Chichi Rukh Dagh beyond the Hazil Su. Also nomadic Kurds from Turkey, such as the Goyan, may visit or take refuge in this region. But the bulk of the *Guli* and *Sindi* tribes of the Zakho plain north of the Khabur and of the northern foothills (Chia-i-Kaira, Chia-i-Dairi) are cultivators. The Guli have fifteen villages and are noted for their dislike of towns. The agricultural Sindi live in thirty-two very small hamlets amongst which are some larger Nestorian villages sometimes reckoned part of the tribe. They are a turbulent, violent tribe, but generally on good terms with their neighbours, the *Sihoi* and *Slopi* who live on the Iraqi and Turkish side of the Hazil Su respectively, and the *Slivani*. The latter live astride the Tigris south of the frontier and are often at enmity with the Turkish Goyan.

Turkomans, Persians, Indians, and Europeans

The figures for distribution by race of the minor nationalities come from the estimate of 1932 and hence are only useful as a very general guide.

The *Turkomans* of northern Iraq are distributed in a number of towns and villages along the old trade-route which led from Baghdad through the Assyrian plains and the northern Jazira to Anatolia. Chief of these are Qara Tepe, Tuz Khurmatli, Tauq, Kirkuk, Erbil, Altun Kopru and, west of the Tigris, Tel Afar. These centres are now being invaded by Kurdish influences. Tribal elements which are by origin Turkoman are the Baiyat north-west of Qara Tepe in the Chinchal valley and sections of the Bajlani north of Khanaqin (p. 374). There are 75,600 Turkomans, 72,000 being in the provinces of northern Iraq (Kirkuk, 29,400; Erbil, 12,200; Mosul, 30,700). The remaining 3,000 were evenly divided between Diyala and Baghdad provinces with a strong community in Mandali town.

Persians, numbering 65,000, are found mainly in the cities of the

delta, both in the holy cities and in Basra and Baghdad, and also in small numbers in the small towns of the Middle Euphrates region and of the lower Tigris provinces; a community existed formerly in the Shithatha oasis. Persians occur also at the border villages and small towns of the Iraqi–Persian frontier, particularly on the road to Kermanshah. Lurish tribesmen appear in this neighbourhood, especially Kalhurs, as also at Amara; and there are Faili Lurs at Kut al Imara. The main provincial groups are:

Muntafiq	1,500	Amara	8,500	Baghdad	18,700
Basra	4,500	Kut	5,000	Karbala	22,000

There are some Persian Baluchis, some so-called 'Barbaris', Afghan by origin, and some Indians, settled in the same localities as the Persians, the majority being at Karbala and Najaf. In all they number less than 2,400, of whom 1,100 are in Karbala province, 600 in Basra, and 350 in Baghdad province.

Except for the Indians of Basra and perhaps some of those at Baghdad, the Persians, Indians, and Afghans are Shia Moslems. Of the Turkomans two-thirds are Sunni, one-third Shia.

The number of *Europeans* and *Americans* normally settled or working in Iraq is remarkably small and did not total more than 800 in 1932. In 1942 there were 11,000 European civilians, perhaps including war-time officials.

Distribution of Religions

In the table on p. 380 the figures for Sunnis and Shias are long out of date (1932) but indicate the general distribution. Those for the non-Moslem faiths are recent (1943). No separate figures exist for the unorthodox Moslem sects.

Moslems. The northern limit of the Shia block is the Diyala river and the canal system between Falluja and Baghdad (fig. 59). The settled and semi-nomadic tribes south of these limits are almost universally Shia, whereas the true beduin tribes are Sunni. But there are exceptions and enclaves. Within the agricultural regions of the Middle Euphrates and Shatt al Gharraf there are many Sunni landlords and Sunni storekeepers and traders in the villages and small towns, some, such as Hilla, having a sizeable Sunni community; the Sadun family itself which provided the great Muntafiq leaders belonged by origin to the Sunni aristocracy of Mecca. At Basra there is a large Sunni element in the population, and the desert town of Zubair is a Sunni community. The nomadic Muntafiq south of the Euphrates marshes are Shias, but their conversion dates only from

the nineteenth century. The Shammar Toqa below Baghdad are other relatively recent converts to Shiism.

The northern fringe of the Shia region along the Diyala and the Euphrates canals is a zone of transition from Shia to Sunni. Near the

Province	*Sunnis*	*Shias*	*Christians*	*Jews*	*Yezidis (Y)* *Sabians (S)*
Mosul . .	268,844	18,997	83,490	12,492	33,828 (Y) 39 (S)
Erbil . .	99,670	220	4,301	4,247	..
Kirkuk . .	122,610	11,204	5,336	3,452	..
Sulaimaniya .	101,282	..	475	1,777	..
Baghdad . .	192,187	96,165	29,268	41,725	272 (S)
Diyala . .	43,086	39,321	466	3,024	1 (S)
Kut. . .	2,569	117,344	97	452	60 (S)
Diwaniya .	3,388	337,083	79	887	43 (S)
Karbala . .	485	106,804	1	56	..
Hilla . .	2,270	207,000	122	2,221	..
Dulaim . .	129,856	474	677	1,244	56 (S)
Basra . .	53,752	182,381	8,753	11,972	604 (S)
Amara . .	4,497	255,995	2,519	3,707	3,659 (S)
Muntafiq . .	3,337	221,545	91	746	1,274 (S)
(Southern Desert)	2,000	18,000	..	..	..
Total	1,029,833	1,612,533	135,675	88,002	33,828 (Y) 6,008 (S)

Euphrates east and north of Musaiyib Sunni sections are found in such tribes as the Zubaid, Jannabiyin, and the former Zoba confederation. Along the Saqlawiya and Abu Ghuraib canals the Sunni element is probably increasing in strength because the new settlers are drawn from the Sunni confederations of Dulaim and even Shammar. In Baghdad province, which includes much of the canal zone, Sunnis outnumber Shias by 2 to 1; Baghdad itself is a Sunni city with a large Shia element, but Kadhimain is a Shia town.

In the western desert, along the Euphrates in Dulaim province, and in the Jazira north of the canals the tribes are Sunni. The settled population of the Tigris valley above Baghdad is more mixed as far as Samarra, which is a Shia sanctuary. The Arabs of the right bank are mostly Sunnis and those of the left bank almost up to the confluence of the Adhaim are Shias; thence the tribesmen from the Ubaid northwards are the Sunni descendants of former beduin tribes.

North of the Jabal Hamrin, in the four provinces of the Assyrian plains and the Kurdish mountains, the Shias amount barely to 5 per cent. of the Moslem population. They are apparently confined to the two provinces of Kirkuk and Mosul and may include the Qizilbashi

Turkomans (p. 330). The Kurds and Arabs of northern Iraq are thus solidly Sunni except for a few thousands of peculiar sects.

The Shebeks, Sarlis, and Kakais comprise these unorthodox Moslems (fig. 72). The Shebeks are in Mosul plain in villages between Mosul

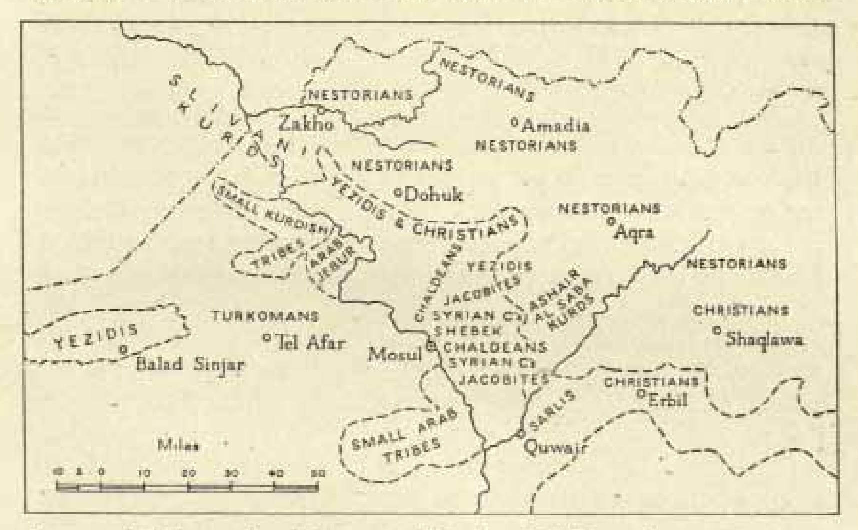


FIG. 72. *Religious and racial groups of Mosul and Erbil provinces. The broken line east of the Tigris shows the western and southern limits of tribal Kurds*

and Jabal Bashiqa, 15 miles to the north-east. The Sarlis inhabit six villages along the Great Zab between Quwair and the confluence of the Khazir. The Kakais have eighteen villages in the Kirkuk plain west of Tauq, another community in Sulaimaniya province east of Halabja, and fifteen villages on the Iraqi–Persian frontier between Khanaqin and Qasr-i-Shirin.

Yezidis and Sabians. The Yezidis, who are estimated at 33,800 persons, live in two separate localities (fig. 72). The first, containing 20,000, is the Jabal Sinjar ridge, where Balad Sinjar is their chief village, and their neighbours are Arab beduin and the semi-settled Turkoman population of Jabal Ishkaft and Tel Afar; the second Yezidi area, containing 13,000 persons, is the Mosul plain from Jabal Maqlub north-west to the foothills around Dohuk, continuing thence between the Jabal Bakhair and the Tigris. Their villages are surrounded by villages of Christian and Kurdish peasants. It is not clear whether there are still some Yezidi villages on the right bank of the Tigris below Pesh Khabur, but there are a few hundred Yezidis in the Zakho district.

The Sabians are townsfolk and limited to no one locality. Their main groups are in Baghdad, Nasiriya, Suq ash Shuyukh, Shatra on the Gharraf, Amara, Qurna, Qala Salih, and over the Persian border at Mohammerah (Khorramshahr). Also a few families live at Mosul and Falluja and in a few villages of Kut and Diwaniya provinces. A recent estimate gives the number in Iraq as 6,000; their provincial distribution is shown in the table (p. 380).

Jews. Out of this community, estimated at 88,000, a greater part (65%, 58,000 persons) is confined to the three cities of Mosul, Baghdad, and Basra, 48 per cent. being in Baghdad; Jewish merchants and pedlars are found scattered in isolation or in small groups throughout the villages of the whole country; small towns, such as Hit and Ramadi on the Upper Euphrates, often contain communities of one or two hundred Jews. The four provinces of northern Iraq contain 15,000, and those of southern Iraq some 11,000 Jews in this category; of these the number of agricultural Jews in the Kurdish mountain zone of the Great Zab does not exceed 6,500, and may be only half this figure.

Christians. The distribution of the Christian population of over 135,000 persons is peculiar, 62 per cent. being in Mosul province and 21 per cent. in Baghdad city (fig. 72). In the Mosul province the bulk of the Christian peasantry, 45,000 persons, live in the Mosul plain and Al Qosh foothills (intermingled with Yezidis) and in the Dohuk and Amadia districts. In the remoter mountain regions of the basins of the two Zabs there are small groups of Christian peasants—and also isolated families of craftsmen—in separate hamlets or sharing Kurdish villages and small towns, such as Shaqlawa; but the total number in the districts of Koi, Aqra, Rania, Ruwandiz, and Zibar does not exceed 3,000. There are also some Christian peasants in the Erbil plain west of Erbil.

The Chaldeans live principally in a number of large villages, such as Tel Qaif and Al Qosh due north of Mosul. The Jacobites and Syrian Catholics are mostly found around the Jabal Maqlub and in the plain south-east of Mosul, where Qaraqosh is a large village; there are also Chaldeans in this area, and in the Kurdish Barwar-i-Bala region (Amadia) and Zakho plain. Nestorians are discussed below.

In southern Iraq there is no parallel to this intermingling of Christians and Moslems in the countryside, the Shia Arabs being more intolerant than the Sunni Kurds. But there is a comparatively large urban population of Christians both in northern and southern Iraq, the Armenians in particular being an entirely urban element. In

Mosul city among nearly 25,000 Christians there are many Chaldeans, Syrian Catholics, Jacobites, and some Nestorians and Armenians, and there is a similar but much smaller community at Kirkuk. At Baghdad there is even greater variety with Latins and Greek Catholics added, and a much larger number (21%) of urban Christians. Basra contributes some 6 per cent. to the total, and another 6·5 per cent. are apparently townsmen of Erbil and Kirkuk in the main. The negligible number of Christians in southern Iraq outside Baghdad and Basra (3% of the total) is mostly confined to the larger country towns such as Amara.

At the time of the disturbances of 1933 there were reckoned to be about 4,000 families of *Nestorians* in Iraq, of whom only 400 belonged to the Mosul vilayet before 1918, the majority being Hakâri Assyrians. Their principal settlements were in the districts of Dohuk (650 families), the Barwar regions of Amadia district (1,660), Shaikhan and elsewhere in Mosul plain (160), in the plain west-north-west of Aqra (400), and in the Harir plain south-east of Aqra (400). Another 700 families were urban in habit and dispersed in towns. The disturbances of 1933 directly affected only the Dohuk and Shaikhan colonies though eventually 2,318 families migrated to Syria. At least the pre-1918 Nestorians of Barwar-i-Zir (Amadia district) and also the Assyrian colony in the Harir plain are still cultivating their lands. A great part of the remainder have taken service since 1941 with the British forces and are at present scattered through the country around military establishments, but it seems that they have retained their villages.

The number of Nestorians now in Iraq is estimated at 20,000. But it is worth noting that the 2,318 families which migrated to Syria after 1933 (over half the estimated total of families) were counted and found to contain only 8,838 persons, barely 4 per family instead of 5, the figure generally assumed. Hence it is unlikely that before the exodus there were more than 20,000 Nestorians in Iraq, and possibly the true figure was even lower, while there can hardly be over 16,000 Nestorians in Iraq to-day.

The chief tribes of the Hakâri Assyrians are the Upper and Lower Tiyari, Tkhoma, Shamsdinan, and Jelu, names derived from regions of the Hakâri mountains.[1] The Shamsdinan are in the Harir plain. Most of the Jelu and many others migrated to Syria.

[1] The modern Turkish spellings are Tiari, Tkuma, Şemdinan, and Cilo.

CHAPTER VIII

ADMINISTRATION AND PUBLIC LIFE

HISTORICAL ORIGINS

THE framework of the Iraqi State is so recent a creation and owes so much to the activities of the first British administration that a semi-historical method of description has been employed in this chapter in order to make clear the peculiar features of the Constitution. The description of the present Constitution and administration will be found on p. 390. Iraq had been a dependency under Ottoman administration rather than an integral part of the Ottoman Empire, and the system of administration used in the central lands of the empire was unsuitable to Iraq. The efforts to apply it made during the nineteenth century (p. 265) were not in any degree successful. This was patent when the British took over the administration of the country. For the most part, therefore, there was no attempt to adapt the Turkish system, and the new-comers had a relatively clear field.

Military Administration

The first phase, as the country was occupied step by step, was the setting up of the usual form of military government, with military governors, assistant political officers, and deputy governors and a few commissioners for special purposes, all responsible to the Chief Political Officer, who was himself responsible to the general officer commanding the forces. The difficulties of administration were increased by the departure of practically every Ottoman official who had held a responsible position, and by their removal of all the most recent records on which administration depended. There remained, however, a fair number of Arabs who had served in the Ottoman administration and who could be employed in the less important offices.

By international law, until the status of the country was definitely changed, the military officials had to administer the country as far as was possible on the basis of the laws hitherto in force. But in Basra vilayet in the early years of the war this was not possible. Almost all of the judicial officers had withdrawn with the Ottoman armies and those who remained were unwilling to act. The administration of the Ottoman law was therefore impracticable and it was decided to introduce a code, known as the Iraq Occupied Territories Code,

which was based on the Indian Civil and Criminal Codes. This also provided for the reference of any suit in which at least one party was a Moslem, and especially in matters of personal status, to Islamic Sharia courts; the selection of the native judges for this purpose was left to the litigants. This arrangement worked quite satisfactorily, being especially welcome to the Shias, who thereby for the first time secured judges from their own community. Criminal trials with very few exceptions came before military courts, but serious crime was surprisingly rare. In civil matters the practice of the Ottoman period was continued in an extensive use of arbitration. The foregoing applied solely to the townspeople. Among the tribes the administration of justice had always rested with the shaikhs despite the frequent efforts of the Ottoman authorities to secure the substitution of their own machinery. The British authorities legalized this practice by the Tribal Disputes Regulation of 1916, and even extended it to the communities of religious minorities such as the Sabians. An important practical change both in the judicial system and in administration was the substitution of Arabic, the native tongue, for Turkish as the official language.

Immediate work had to be undertaken by the military authorities for the improvement of health and sanitation. Here the interest of the civil population and of the forces could not be separated. The military authorities had to start almost from the foundation. The confidence of the people, which was essential to success, was soon secured, and the public health began to improve. The services of British doctors and hospitals were undoubtedly a major factor in securing the friendliness of the population in the early days of the British occupation.

With the extension of the occupation the need for a closer organization of the system of administration became apparent. In July 1917, four months after the capture of Baghdad, the status of the Chief Political Officer was raised to that of Civil Commissioner. His duties were defined in the following terms:

> 'The civil administration must be carried on under such military supervision as the General Officer Commanding in Chief considers essential, with due regard to local conditions and prejudices. . . . For the present only such minimum of administrative efficiency should be aimed at as is necessary for the maintenance of order and to meet the requirements of the Forces; the amendment of laws and the introduction of reforms should be kept within the narrowest possible limits.'

At the same time the Civil Commissioner was made responsible to

the Secretary of State for India. Several of the towns remained under military governors, but although the titles were not altered, their duties became civil rather than military. As the occupied area was extended the number of political officers was increased. The Turkish administrative division of Baghdad vilayet into three divisions (*sanjaqs*) was replaced by a more convenient grouping of the districts (*qadhas*) into seven small provinces (*liwas*). After the armistice the whole country was carefully divided on tribal and ethnological lines into fourteen provinces, which still exist, though they were temporarily abandoned in 1921 (p. 394).

At an early stage a revenue department had been created under a Revenue Commissioner. At the end of 1916 its place was taken by a Revenue Board consisting of two officers who divided the country geographically between themselves. Later this division was abolished but the department was divided into two independent organizations—a Revenue and a Financial Department—with a secretary at the head of each. A group of other departments—Education, Waqf, Customs—and even the preliminary organization of the machinery of Justice were attached to the Revenue Department.

The Departments of Irrigation and Agriculture were formed in 1918 as military units working under a Board of Agriculture composed of civil and military members. In 1919 the functions of these two departments were handed over entirely to the civil authorities. The Public Works Department also developed directly out of the military administration, but it remained under military control longer than the others. In 1920 a civil department of Public Works took over the Irrigation Department, whose chief duties were protection against flood, the control and conservancy of rivers and canals, and the distribution of water between the different watercourses, many of which needed extensive clearing and rebuilding. The Survey Directorate, another military organization, was transferred at the same time.

Administration of justice continued to cause trouble. In Baghdad vilayet, as in Basra, all the judges and senior officials of the courts had withdrawn on the British occupation. Most of the records had gone with them, those that remained had been destroyed in the course of the looting that intervened between the Turkish withdrawal and the effective occupation by the British army. The authorities in London refused to sanction the extension to the Baghdad vilayet of the special code which had been introduced in Basra vilayet. The beginnings of a system were, however, quickly built up. It began

with a civil court of Small Causes and Sharia courts of Moslem Law. Political officers were given power to deal with urgent cases, and a Board of Arbitration was set up at Hilla. Jurisdiction in criminal cases was reserved for the military governors and political officers. The systems of law administered by these courts were the existing Ottoman code and the Moslem Sharia law. The courts of the non-Moslem communities continued to deal with matters of personal status as under the Ottoman system.

Reform of Legal Administration. After the armistice of 1918 the administration of justice was reorganized. A central Judicial Department under a Judicial Secretary was formed at Baghdad and the system described below was applied to Basra vilayet, so that henceforth the administration of justice throughout Iraq became uniform. The system of civil courts which had existed in essence before 1914 was re-established and extended. A Court of Appeal was set up in Baghdad and Courts of First Instance there and elsewhere (p. 400). Civil 'Peace' Courts were opened, but the jurisdiction of Sharia courts was limited at this time to the litigation of Sunni Moslems, the other communities being given access to the civil courts which invariably referred questions of personal status to the respective religious authorities. The general Ottoman law remained the basis of the civil legislation and was amended in detail as the necessity arose. The application of the Criminal Code of Ottoman law was found to be impossible. New codes—the Baghdad Penal Code and the Baghdad Criminal Procedure Regulations—were therefore substituted for them as temporary measures. The former was a simplification and adaptation of the Ottoman Penal Code, Egyptian law being utilized in the main. The Criminal Procedure Regulations were based on the Sudan Criminal Procedure Code, which in its turn was generally based on the Indian regulations and British military law. Under this legislation the system of criminal courts was instituted which still exists (p. 401). The highest courts were constituted of British judges or Political Officers; their findings required confirmation by the Civil Commissioner. Political Officers could revise the decisions given by Iraqi magistrates subordinate to them.

When the Judicial Department was made independent of the Department of Revenue, the Waqf Department was attached to it. This is the department of the Government that deals with Moslem religious endowments and administers their properties (p. 402). The department was divided between administrative and learned officials, the latter dealing with religious regulations and appointments.

Education. In the summer of 1918 an independent Department of Education was organized, having grown too large to remain a section of Revenue. The new department devoted its attention in the first instance to elementary education, and by the end of 1919 there were seventy-five such schools in existence. Four of these schools were non-Moslem: three Christian, and one Jewish. Apart from these government schools there were a number of others, mostly Christian —especially in the Mosul vilayet—in which instruction was given in the communal language; the Islamic mulla schools, which were also outside the government system, were educationally on a lower level. Most of these schools, except those of the mullas, received financial support from the Government and in return accepted a certain amount of supervision by it. In Baghdad a training college for teachers was established at which Sunnis, Shias, and Christians all attended. Jewish young men were reluctant to do so. The principal difficulty was one of language. Instruction was given in Arabic which was inadequate for students coming from Kurdish and Turkoman districts. As a consequence the Kurdish and Turkoman students soon withdrew.

The education of girls was inevitably behind that of boys. There were a few girls' schools in Turkish times, but female education was encouraged neither by the authorities nor by the great majority of the population. Education of Christian and Jewish girls was more general. The military authorities made a beginning by opening five schools for girls.

Secondary education was even more difficult. There were secondary courses in Baghdad and Mosul for boys who had completed the primary course. They were not popular, and of the 34 boys who attended at the end of 1919 (7 in Baghdad, 27 in Mosul), 18 of those in Mosul were Christians. A private Sunni school, although nominally secondary, worked on a syllabus that was very little more than primary. The two higher schools of Turkish times—the Teachers' Training College and the Law School (p. 406)—were continued, and a commercial school was opened. A small technical school and a survey school, which it was hoped would prove the germ of an engineering college, were also opened under British auspices. A standing difficulty lay in securing suitable teaching staff of any kind, and recourse had often to be had to British direction.

A branch of the Department of Education dealt with archaeology. On the occupation of Baghdad the Turkish law safeguarding antiquities and ancient sites was at once reaffirmed and steps taken for

their protection. A little excavation was undertaken and some valuable finds made, but they were soon suspended pending the creation of a Department of Antiquities, which was not considered a matter of urgency.

Public security was entrusted to the Levies and the Police. The nucleus of the Levies was a small body of mounted Arabs used as scouts during the war. Other elements were the forces raised locally to guard the lines of communication. After the armistice these forces, some 900 men, were placed under civilian control and were employed as police and messengers, but remained a semi-military body. In 1919 an Inspecting Officer of Arab Militia was appointed and these forces were officially recognized as militia. A few months later the name 'Levies' was adopted and the gendarmerie at Mosul were merged with them. The Levies were placed at the immediate disposal of Political Officers and served the purpose of both light mounted infantry and police. They were recruited largely from among the Assyrian Christian refugees (p. 313), but also from both the Arabs and the Kurds.

The regular police force goes back to the occupation of Basra. Its first members were employed in instituting an arms blockade in the Persian Gulf. As the British advanced, similar forces were set up in other towns, but it was very difficult to find recruits. The Turkish police had acquired a bad reputation (p. 266) and no respectable Arabs were willing to be described as police. After several experiments with Egyptians and with Arabs from Aden, a satisfactory force of Iraqis was built up under an Inspector-General at Baghdad with Deputy Commissioners at Baghdad and Basra and Assistant Commissioners in other towns. The force included both town and district police and was under the executive control of the Political Officers. Included in the police establishment were the Railway Police Service and the Criminal Investigation Department.

The history of the Ministry of Agriculture is narrated on page 407; that of the Railways and Port of Basra in Chapter XIII.

Civil Administration

The military government came to an end at the beginning of October 1920 with the arrival in Iraq of Sir Percy Cox as High Commissioner. Part of the country was still in a disturbed state and had to remain for the time being under martial law (p. 292). Civil administration could therefore be introduced at once into only a few of the districts. However, a provisional government was quickly

formed under the President of a Council of 17 ministers, of whom only 8 were heads of ministries. The ministries consisted of the Interior, Finance, Justice, Defence, Public Works, Education and Public Health, Commerce, and Waqf. Shias and Sunnis, townsmen and tribal shaikhs, Christians and Jews, were all represented among the ministers; the ministry of finance in particular was seldom out of the hands of Sasoon Heskail between 1920 and 1925, who was a member of the well-known family of Baghdadi Jews. To each ministry a British adviser was attached. This Provisional Council remained in office until the coronation of King Faisal in August 1921.

The next step was the establishment of a civilian Iraqi administration in the provinces and the restoration of the Ottoman subdivision by districts and parishes (p. 265). At this time the careful organization of the country into 14 provinces was temporarily abandoned in favour of a tenfold division, closer to the former Ottoman grouping in 9 or 10 sanjaqs. British Political Officers were replaced by Iraqi officials, but retiring Political Officers remained as advisers to the provincial governors. The reorganization of the Levies became necessary because of the approaching reduction of British military forces (p. 296). Their size was increased to 5,000 men, and the force was placed under the direct control of the High Commissioner, the cost being defrayed by the British Treasury. The Levies were not incorporated in the Iraqi army on account of the scarcity of Arab officers and the disinclination to appoint British officers to the Iraqi army.

The Middle East conference at Cairo in April 1921 led to the decision to institute a monarchy in Iraq. Shortly afterwards a referendum was held and on 18 August Faisal, having been selected as ruler with practical unanimity (p. 293), was proclaimed King of Iraq. The Provisional Government then resigned and a new cabinet of nine members was appointed, the departments of Education and Public Health being separated.

THE CONSTITUTION

IRAQ is to-day a constitutional monarchy under a king, Faisal II, a child, born on 2 May 1935. His maternal uncle, the Amir Abdul Ilah, acts as regent. Under the Organic Law, adopted by the Constituent Assembly on 2 August 1924 and amended in a few details on 29 July 1925, a limited monarchy with responsible government, 'a constitutional, representative and democratic government, limited by law', was established. The instructions to the draftsmen were that the

Organic Law should (1) contain nothing contrary to the provisions of the treaty with Britain then in force; (2) take account of the rights, wishes, and interests of all populations inhabiting Iraq; (3) ensure to all complete freedom of conscience and the free exercise of all forms of worship, subject only to the maintenance of public order and morals; (4) provide that no discrimination of any kind shall be made between the inhabitants of Iraq on the ground of race, religion, or language; and (5) secure that the right of each community to maintain its own schools for the education of its own members in its own language shall not be denied or impaired.

The Crown

The king confirms laws and orders their promulgation, issues orders for the holding of general elections to the Chamber of Deputies, appoints senators, and confirms the election of the President and Vice-President of the two Chambers. He opens and may adjourn or prorogue Parliament. When Parliament is not sitting he may issue ordinances having the force of law by means of Royal Iradas. These require later confirmation by Parliament. The king may also issue ordinances for the fulfilment of treaty obligations; these do not need the confirmation of Parliament.

By the Royal Family Ordinance of 1936, as amended two years later, a council consisting of the King, the Prime Minister, the Presidents of the Senate and the Chamber, and the Ministers of the Interior and Justice, exists to deal with matters of personal status connected with members of the Royal Family.

Parliament and Cabinet

The legislative body consists of a Senate and a Chamber of Deputies. The Senate or *Majlis al Aayan* consists of 20 members, nominated by the king to serve for 8 years, one-half retiring or being reappointed every 4 years. The Chamber of Deputies or *Majlis al Nuwwab* contains 150 elected deputies, nominally one for every 20,000 male Iraqi subjects, women having no vote. The number is increased with changes of population. The non-Moslem communities must be represented in the Lower House. The voting is by secret ballot on the old Ottoman system of primary and secondary elections. All enfranchised persons elect electors in the proportion of 1 to 250 of their number, who in turn elect the deputies. Thus lip-service at least is paid to democracy (p. 302).

The duration of Parliament is normally for 4 years, and the yearly session lasts 4 months. Draft bills may be submitted in the first instance to either Chamber. Standing committees are an important part of the legislative machinery. All bills are referred to one or other of them, and the recommendations of committees carry great weight. A bill to become law must have the approval of the king and of both branches of the legislative body. When one Chamber rejects what the other has passed a joint session is held. To secure assent to a bill a two-thirds majority is required at these joint sessions.

The administration of the country rests in the hands of a cabinet of eight or nine members, jointly responsible to parliament for their general policy, under a Prime Minister appointed by the king, who also appoints the other members of the Cabinet on the nomination of the Prime Minister. The ministries consist of the Interior, Foreign Affairs, Defence, Finance, Social Affairs, Communications and Public Works, Economic Affairs including Agriculture, Education, and Justice. The titles of the several ministries describe briefly their functions. They are staffed with very few exceptions by Iraqi subjects, the few exceptions being less than a dozen British advisers appointed to some of the departments. Under a law of April 1927 the further engagement of foreigners was practically prohibited, such an appointment to be made only if no Iraqi were available. In that event the approval of the Council of Ministers had to be given to the appointment. In these circumstances the number of foreign, that is to say British, officials other than advisers was continually being reduced (p. 296). Under the Civil Service law, appointments to the civil service are limited not only to Iraqi subjects but to those who have enjoyed that citizenship for at least 5 years. Early in 1943, however, in the exceptional circumstances of the war, it was realized that the support of British officials was essential. A few were therefore again appointed to controlling positions in some of the ministries, for the most part in the technical departments, such as the Director General of Imports and Economic Adviser to the High Supply Council, the Director General of Transport, and the Director General of Local Products.

Central and Local Government

The functions of the Ministry of the Interior or 'Home Office', the principal department of state, are generally the same as those of ministries of similar title in other countries. Apart from the general internal administration of the country it deals specifically with Muni-

cipalities, Police and Prisons, the Census, and the Health Service. Local government is firmly centralized under the control of the Minister by means of the provincial system.

The country is divided into *liwas* or provinces, of which there are

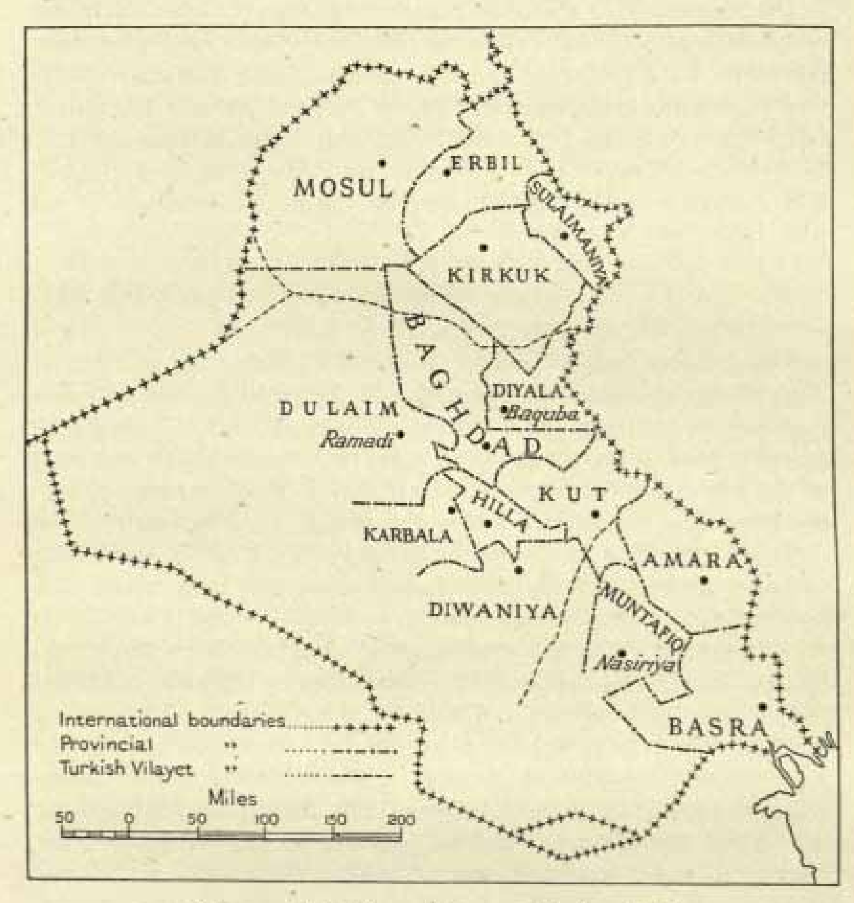


FIG. 73. *The Liwas of Iraq and their capitals*

now fourteen, under *mutasarrifs* or governors. These are again subdivided into *qadhas*, large districts under *qaimmaqams*, and *nahiyas*, smaller regions or parishes under *mudirs*. The mutasarrif, apart from being the chief executive officer of the liwa, is also the agent and representative of the Ministers. In every liwa there is an administrative council under the chairmanship of the mutasarrif, consisting of

three official members and four others elected by the qadha and municipal councils. The council meets regularly and passes resolutions on matters referred to it by the mutasarrif. The qaimmaqam is the chief executive officer of the qadha and carries out the instructions of the mutasarrif to whom he reports. He presides over the qadha administrative council, consisting of three official and four non-official members. The mudir is the executive officer in his own nahiya and carries out the instructions of the qaimmaqam and mutasarrif. Municipalities (p. 395) are under the general control of the mutasarrif. Mutasarrifs are appointed by the Council of Ministers; qaimmaqams and mudirs by the Prime Minister on the recommendation of the Minister of the Interior.

Provincial Areas

The provinces are generally considerably smaller than the former Turkish sanjaqs which they superseded. In northern Iraq they correspond well to geographical features. Mosul, Erbil, and Kirkuk provinces consist of the three divisions of the Assyrian plains and most of the mountain basins of the Great and Little Zabs, which form the provincial boundaries within the plains, and the basin of the Adhaim. Sulaimaniya consists of the mountain basin of the Diyala and also of the left-bank tributaries of the upper Little Zab. One political effect of this arrangement is to divide the mountain Kurds into four political but not artificial compartments. In southern Iraq some of the divisions seem geographically rather arbitrary, but tribal factors have influenced the provincial arrangements. The former Baghdad vilayet (fig. 73) has been divided into seven liwas in the place of the three Turkish sanjaqs. The subdivision of the Middle Euphrates zone into three provinces (Hilla, Diwaniya, Karbala) and the virtual limitation of Karbala province to the territory of the Holy Cities are of special interest. The Upper Euphrates province of Dulaim is both a natural and a tribal unit, except for the artificial division of the Jazira, the grazing-ground of beduin and shepherd nomads, between Dulaim and Mosul provinces. Baghdad, Diyala, and Kut provinces are reasonable subdivisions of the agricultural zones of these rivers and their canals together with a desert hinterland, though the inclusion in Baghdad of a desert zone eastwards to the Iraqi border seems to serve no purpose, except to isolate administratively Diyala and Kut provinces.

The three southern provinces, Amara, Muntafiq, and Basra, cor-

respond very closely to the three sanjaqs of the same names which formed the Turkish vilayet of Basra. Historical and geographical reasons have combined to preserve the ancient arrangements.

Municipalities

Under the Turkish regime a municipality (*baladiya*) was established in every town or village of any size. Nominally they existed to provide sanitation, policing, and lighting; actually to furnish salaries to the leading man of the town and his office staff, and to defray the expense of entertaining officials on tour. On the entry of the British the larger municipalities were placed in the charge of Political Officers, who had the assistance of informal councils which later developed into municipal councils. In the smaller centres municipal affairs were left for the most part in the hands of the inhabitants. Although at first grants had to be made from government funds, the municipalities soon became self-supporting and under the guidance of government officers developments were shown in a number of directions. Early in the course of the mandatory period elections of councils were introduced, one of the elected members being appointed mayor or *rais baladiya* by the mutasarrif (in Baghdad by the Minister of the Interior).

In 1920 there were 73 municipalities; by 1930 they had increased to 104. At the end of 1940 there were 118. Most of them are, however, very small towns (p. 356). Baghdad, Basra, Mosul, and Kirkuk were and are the principal municipalities, the head of the first named enjoying the dignity and title of Lord Mayor or *Amin al Asima*. Elections are in accordance with the primary and secondary system (p. 391) but based on universal manhood suffrage, and despite the appearance of freedom of choice are largely influenced from government centres, although the ballot is supposed to be secret. Provision is made for the representation of minority communities, provided that they comprise at least 5 per cent. of the population. The council prepares its own budget, is responsible for sanitation, street lighting, water-supply and the maintenance of roads and bridges within municipal limits, poor relief, pauper burial, health, and other public services. But the mutasarrif has general control, and must approve normal municipal expenditure, while larger expenses need ministerial sanction. The sources of revenue cover a wide range—road taxes, river-craft licences, bridge and ferry tolls, building-permit fees, dog tax, advertisement tax, trade-licence fees, slaughter-house tax, lottery tax, &c.

Minority Communities

The communities of religious minorities (pp. 330–335) enjoy certain rights and privileges. In addition to the freedom of conscience and worship, the educational rights and the arrangements for political representation provided by the Constitution (pp. 298, 391), the religious communities have also their own spiritual and lay councils with jurisdiction in matters of personal status and other subjects. Most of the Christian churches still have only their traditional episcopal organization, but the constitutions of the Armenian Orthodox and Jewish Communities were laid down in laws passed by Parliament in 1931 and may serve as a model for lay organization of other bodies. The Armenian organization includes a Head of the whole Armenian Community; Church Representatives in Basra, Mosul, and Kirkuk; Spiritual, Lay, and General Councils sitting in Baghdad; and Church Assemblies in the three other towns. The Head of the Community, who is also President of the three Councils, is elected by the General Council and the appointment approved by the king. The Spiritual Council is concerned with the supervision and conduct of spiritual and religious affairs, and has jurisdiction in matters of personal status. The Lay Council administers the Armenian Waqf. The Church Representatives and Assemblies administer the local affairs of the communities.

The Jews of Iraq are organized in separate communities, the first to be constituted being those of Baghdad, Basra, and Mosul. The organs of these three communities are a President, a General Council, and a Lay Council, and in addition the Baghdad community has a Spiritual Council.

At Baghdad the President and Chief Rabbi are elected by the General Council for a period of four years. The appointment of the President, who is the official representative of the community *vis-à-vis* the Government, is subject to government approval. The Lay Council, consisting of a Chairman as president and eight other members, administers Jewish Waqf and other religious, charitable, and educational property, and collects communal dues. The Spiritual Council, consisting of the Chief Rabbi as chairman and seven other members elected by the General Council for a term of four years, deals with the training of clergy and the general religious and spiritual supervision of the community. The General Council consists of 60 members, of whom 7 are rabbis. The lay members of the General Councils are elected by the male members of the community and the

rabbi members by the rabbis of the community. Qualifications for membership of the councils consist of Iraqi citizenship, a minimum age, and literacy. Religious courts may be established by the community with jurisdiction in matters of personal status.

The communal organization at Basra and Mosul is generally similar to that at Baghdad, though the councils are smaller in size, and a Chief Rabbi is appointed there only when a religious court has been established.

Desert Administration

The western and southern deserts and their beduin and shepherd population, though nominally divided between the adjacent provinces, are really administered from Baghdad. The former Turkish administration was unable to exert any control over the beduin tribes except through the influence of the paramount shaikhs. Similar methods were followed in the early years of the mandate until the Wahhabi menace from Saudi Arabia (p. 318) compelled the Government of Iraq to organize the control and defence of the desert.

A Southern Desert Province was constituted under the then Captain J. B. Glubb, an administrative officer with special knowledge of desert conditions and tribes, who was given a force of 200 men with 70 camels and 14 motor-cars, armed with quick-firing weapons. Direct contact was established with the beduin tribesmen within their remote habitats, government authority was extended to the limits of Iraqi territory, and a political settlement was made with Saudi Arabia concerning the movement of tribes (p. 320). The Southern Desert Province seems no longer to exist as such, but the work of the desert patrol continues (below).

Police and Prisons

A Police Force was first formed in 1921 under the central control of an Inspector-General. Previously the police had been mainly under local control. British officers and non-commissioned officers were gradually replaced by Iraqis whom the Police Training School provided, and an Iraqi was placed in charge. In 1940 the Police Force, which is administered by a Director-General under the control of the Minister of the Interior, consisted of 635 officers and inspectors and 9,749 men, all of whom were Iraqis except for two advisory British officers and a British technical expert. Nearly half the force is mounted, and there is also a camel corps of 140 men, for the Southern Desert, and a complement of armed cars. In special circumstances assistance is given by the Air Force.

Each province has a Commandant of Police, and each qadha has an Assistant Commandant. The qadhas are subdivided into station areas in charge of Inspectors within which there is a system of posts in charge of Head Constables. Stations and posts are loopholed and defensible, and all policemen carry arms. Wireless communication is used in the Southern Desert and in the mountain regions. There is a central mobile force of 300 mounted and 600 foot with a number of armed cars stationed at Baghdad, partly as a general reserve, and partly for the control of political disturbances in the capital. The Police Department includes a Criminal Investigation Department with a finger-print section. The passport, nationality, and naturalization department was originally a part of the Criminal Investigation Department, but was made an independent department in 1930. Its permission is necessary both for leaving and for entering Iraq.

There are prisons in Baghdad, where there is also a reformatory school for boys, and at most provincial capitals except Karbala, Sulaimaniya, and Diwaniya.

Army and Air Forces

The Iraqi army has been built up from small beginnings since 1921 when a skeleton headquarters was formed of Iraqi ex-officers of the Turkish army under Jafar al Askari (p. 286). The first battalion was formed at Baghdad in July 1921, and under the guidance of a British military mission the number of units was continuously increased until in 1935 it was possible to adopt a divisional organization. By 1940 the strength of the army had reached four divisions, three being first-line divisions and the fourth a second-line division still in course of expansion, together with a mechanized force including two infantry battalions and a company of light tanks, three frontier defence battalions of mountain troops, unattached army troops including a cavalry brigade, and a river flotilla; the latter consisted of four Thornycroft gunboats of 100 tons displacement. The field strength of the army has been increased at the expense of the administrative, medical, and transport services, and of reserves of equipment and munitions, though in recent years attempts have been made to remedy these defects.

Recruitment. The authorized strength of the army in 1940 was 2,177 officers and 49,273 men, but the establishment was then from 12 to 20 per cent. below strength. To meet the need for a rapid expansion of the officer corps a military secondary school was established from which the majority of cadets for the Royal Iraqi Military

College are drawn; other candidates come from the civil secondary schools. For senior officers there is a Staff College similar to the British Staff College, and many officers have also been sent to England or India on courses.

Other ranks are recruited both by voluntary enlistment and conscription. The latter was finally established in 1936 for all males between 19 and 25 years of age, the average period of service being for two years followed by varying periods in the First and Second Class reserve, up to 20 years liability for military service. Conscription is not applied as in Europe. The wealthy may buy themselves off for £50; students are exempt; there is balloting in the annual classes when, as often, they exceed the number necessary; and the ever-reluctant tribes simply provide a quota. Most recruits are illiterate but receive elementary instruction in reading, writing, and arithmetic given in Arabic. The army is essentially an Arab and national army; though many Kurdish officers have distinguished themselves, no serious attempt has been made to make the most of the best fighting material in the country.

Military Administration. The country is divided into three districts: Northern with headquarters at Mosul, Eastern with headquarters at Kirkuk, and Southern with headquarters at Baghdad. Divisional headquarters before 1941 were at Baghdad (2), Kirkuk (1), and Diwaniya (1). The military school and central establishments were at Baghdad. Government control is exercised by the Minister of Defence, who works through a Director-General of Administration and the Chief of the General Staff, who is the senior officer on the active list. These three, together with the heads of the principal Defence Departments, and also certain general and field officers, form a Defence Council which decides matters of high policy.

Military material, by the terms of the Anglo-Iraqi Treaty, must be of similar pattern to that used by the British, so that Iraq has been generally dependent upon Great Britain and India for supplies, though there is a S.A.A. factory at Baghdad and a rifle factory at Musaiyib. Likewise foreign military instructors must be British subjects, and there has always been a small British military mission in Iraq whose duties are limited to inspection and advice. Both in peace-time and in the Anglo-Iraqi campaign of 1941 (p. 305) competent critics observed that the value of the army's work depended on the extent to which the advice of the mission had been sought and followed.

The most notable weakness of the army is common to the whole

country, the general shortage of men fit to handle and maintain modern mechanical equipment. But Iraq appears to have the most formidable army among the Arab states of the Middle East.

Royal Iraqi Air Force. This is administered by the Ministry of Defence and advised by R.A.F. members of the military mission. It came into being in April 1931 when it was equipped with five D.H. Gipsy Moth aircraft. More modern aircraft were gradually adopted and the size of the force was built up to seven squadrons, including army co-operation, bomber, fighter, and transport units, with an establishment of 153 officers and 1,175 other ranks. Officers are drawn from the pick of the young officers and cadets of the army. The force suffers like the army from the great shortage of skilled personnel, and also from a similar weakness of supply organization. The R.I.A.F. had modern aerodromes of its own (in 1940) only at Baghdad, Kirkuk, Mosul, and Diwaniya. There is a small Flying Training School at Baghdad.

Levies. These provided the internal security force during the mandatory period when the Iraqi army was being formed, and were in part absorbed into the army. The remainder were to have been disbanded in 1930 and replaced by Special Guards in the service of the R.A.F., but the constitution of the Special Guards was never decided and the Levies continued to exist. Their number was reduced by 1932 to 1,250 and remained at that figure until the outbreak of war in 1939. They consisted of 8 companies, of which 4 were manned by Assyrians, 1 by Kurds, and 3 by Arabs. The number of the Levies then increased by stages until it reached 7,000 officers and men. Kurds, Assyrians, Arabs, and Yezidis are now all represented. The Levies are administered by the British Air Ministry.

Justice

There are four kinds of Courts of Justice: Civil, Criminal, Religious, and Tribal.

Civil Courts. These deal with lawsuits. There is a Court of Cassation and Appeal at Baghdad under a British president which deals with appeals and exercises wide powers of revision. Below it are 5 principal Courts of First Instance with a bench of judges (3 of them under British presidents), 9 Courts of First Instance each with a single judge, and 47 Peace Courts. The distinction between these courts depends upon the amount of the sum involved. Peace Courts, which resemble English County Courts, deal generally with cases involving not more than 56 dinars (Rs. 750), and not concerned with land titles.

Where there is no Peace Court, administrative officials are sometimes competent to deal with cases of debt due by cultivators.

There are no capitulations, and Iraqis and foreigners are equal before the law. Under the Anglo-Iraqi judicial agreement of 1930 provision was made for a number of foreign, i.e. British, judges, principally so that they might be available for trials in which Europeans, Americans, or Japanese were involved.

Criminal Courts. There are, first, Magistrates' Courts in all centres where there are Civil Courts, in three grades—those that award punishment not exceeding 2 years', 6 months', and 1 month's imprisonment respectively. In the top two grades the magistrates are civil judges exercising magisterial powers; in the bottom grade municipal councillors often serve as magistrates. In places where there are no courts, administrative officials exercise limited magisterial powers. Above the Magistrates' Courts are six Sessions Courts each with a bench presided over by one of the principal civil judges. These deal with cases that have first been investigated by Magistrates' Courts and with appeals from Magistrates' Courts. They are competent to try any case. A conviction by a Court of Session goes automatically to the Court of Cassation for confirmation and may be revised. This is the civil Court of Cassation sitting as a criminal court. The Court of Session has general supervision over all criminal proceedings within its district, and the Court of Cassation, besides being a Court of Appeal, has a similar supervision over criminal proceedings throughout the country.

Religious Courts. Matters of personal status affecting marriage, dowry, divorce, &c., and some matters affecting religious endowments (*waqf*) are dealt with by religious courts. *Sharia* courts, both Sunni and Shia, exist for Moslems wherever there are civil courts, the judges being either *qadis* or judges of the civil courts drawn from the community concerned; there is appeal to the Sharia Court of Revision at Baghdad. The Spiritual Councils of the Christian and Jewish communities (p. 396) provide analogous courts for matters affecting the personal status of Christians and Jews.

Tribal Courts. Outside the towns and large villages the tribesmen, whether settled or nomad, recognize only their tribal custom which has developed through the centuries, and do not understand or accept the modern courts and codes. Hence the Government has given an official status to tribal custom, so that tribal arbitration and tribal courts (*Majlis*) convened by administrative officials take the place of law courts. The general system of this jurisdiction is governed by a

special law for Tribal Disputes. Punishments are the same as those inflicted by the ordinary courts, but the tribal judges and arbitrators reach their verdicts in accordance with tribal custom and their native habits of thought. There is no appeal from the Majlis, but sentences are confirmed or revised by the mutasarrifs. By this system a great amount of tribal jurisdiction affecting the whole rural population is entirely withdrawn from the orbit of the Ministry of Justice.

Law and Lawyers

The Civil Courts administer a body of legislation consisting mainly of the former Ottoman codes called the Majalla, modified by later proclamations, regulations, and enactments of the pre-mandatory and mandatory period and by recent legislation. Certain Indian Acts, such as the Indian Companies Act, were introduced to fill gaps in the Ottoman system. The Ottoman criminal code has been replaced by recent enactments and legislation (p. 387). As a whole the body of law needs considerable modernization and simplification, a task which has been taken in hand by a Legal Commission but apparently not yet completed.

The Religious Courts apply the law of their communities, the Koranic law according to the various rites (p. 252) for the Moslems, and the appropriate communal law and customs for the Christians, Jews, and other communities.

In Iraq, as in most countries, the professions of barrister and solicitor are merged. The bar is controlled by an association of judges, and procedure in the courts is controlled, in the civil courts by the Ottoman Code, and in the criminal courts by a Code of Criminal Procedure enacted after the British occupation.

Waqf

This is a form of charitable endowment peculiar to Moslem lands. A man may make over property as a trust in perpetuity for the benefit either of a religious institution such as a mosque, madrasa, or school, or of particular persons including his own relatives for a certain period with eventual reversion to a religious foundation. The object was to secure property from seizure or forfeiture through the caprice of the temporal sovereigns and governors. For example, in 1930 the descendants of the slaves of the last Mamluk Vali of Baghdad, Daud Pasha, were still being maintained by funds from a waqf endowment made by their master. *Waqf* (plural *awqaf*) endowments are administered by boards of trustees, but the great number and the remote

origin of many of the endowments calls for state supervision similar to that exercised formerly by the Chancery Court in England.

The Department of Waqf, which is concerned only with Moslem religious, educational, and charitable endowments, is subsidiary to the Ministry of Justice. It includes the administration of the properties from which the revenues of the Waqf are derived. The Ottoman regime left a heavy burden on the new administration in this department. Repairs and rebuilding had been greatly neglected so that many buildings for which the department was responsible were in ruins, and corruption and peculation were widespread among departmental officials. During the three years in which the British administered the Department its revenue increased from 3 million to 17 million rupees, but after two years it passed into the hands of an officer belonging to the community mainly concerned, the first of the government departments to pass out of British control. Until 1929 there was a Ministry of Waqf, but then it was reduced to the status of a department under a Director-General, the British Inspector-General who had remained as adviser being withdrawn. The department is virtually independent of outside control, because, in view of its concern solely with religious and related matters, the Government prefers not to interfere in its management.

The department maintains a number of elementary schools of its own and aids others. It also provides teaching of secular subjects as well as of theology in the mosques, and it grants scholarships to enable selected students to attend European and American universities. Its attempt to establish a theological college of university standard in Baghdad was a failure.

Education

In Iraq, as in other Arab countries, there is a fairly pressing demand for schooling if not for education, and it is in the provision of schools that the Iraqi State has made its most notable and useful advances. The general situation is shown by the fact that in 1940–1941 modern primary education was provided for 114,000 children, 3·3 per cent. of a total population of over 3,500,000, whereas in 1920 less than 0·6 per cent. of the population were receiving primary education, and the number of government primary schools in this period has been increased ninefold from 85 to 755. The total staff of the government elementary and primary schools in 1940 numbered 3,525, an average of about 1 teacher to 25 pupils.

Primary education is now free and compulsory for both boys and

girls, though compulsion cannot be generally applied because of the lack of schools outside the larger villages. But the network of government primary schools is becoming more dense and in 1940 averaged 42 in each province except Basra (111) and Baghdad (117).

Above the primary schools there are intermediate schools, for the first stage in secondary education, and secondary schools proper. The Ottoman administration had endowed Iraq with not more than three of these, and they are still relatively few in number and are practically confined to the capitals of provinces. In 1940–1941 they accommodated 12,000 (intermediate) and 2,000 (secondary) pupils, only a small percentage of those attending primary schools, and were staffed by somewhat over 330 intermediate and 100 secondary teachers. But the advance in numbers, equipment, and standards since 1918 is remarkable. There are also 10 technical and vocational schools, including teachers' training colleges. The following table summarizes the school situation in 1940–1941.

<table>
<tr><th rowspan="2">Type</th><th colspan="2">Schools</th><th colspan="2">Attendance</th></tr>
<tr><th>Boys'</th><th>Girls'</th><th>Boys</th><th>Girls</th></tr>
<tr><td>Primary—Government</td><td>559</td><td>196</td><td>64,015</td><td>26,792</td></tr>
<tr><td>Private</td><td colspan="2">97</td><td colspan="2">23,587</td></tr>
<tr><td>Intermediate</td><td>26</td><td>16</td><td>9,667</td><td>2,223</td></tr>
<tr><td>Secondary</td><td>12</td><td>2</td><td>1,821</td><td>279</td></tr>
<tr><td>Teachers' Training</td><td colspan="2">4</td><td colspan="2">2,116</td></tr>
<tr><td>Engineering</td><td>1</td><td>..</td><td>87</td><td>..</td></tr>
<tr><td>Technical School</td><td>1</td><td>..</td><td>178</td><td>..</td></tr>
<tr><td>Home Arts</td><td>..</td><td>1</td><td>..</td><td>109</td></tr>
<tr><td>Nursing School</td><td>..</td><td>1</td><td>..</td><td>84</td></tr>
<tr><td>Midwifery</td><td>..</td><td>1</td><td>..</td><td>13</td></tr>
<tr><td>Health Service</td><td>1</td><td>..</td><td>65</td><td>..</td></tr>
</table>

Apart from the modern primary schools, governmental and private, there are numerous Islamic schools, *maqtabs*, kept by the mullas. These mulla schools, which are the only schools normally found in the smaller villages (p. 338), teach reading, writing, and religion only; the pupils are not separated into classes and are usually Moslems.

In government schools the language of teaching is Arabic in Arab areas, Kurdish in Kurdish areas, and in special minority areas Syriac and Turki. In non-government schools, which are usually provided by the religious communities, the language of instruction is in the above four tongues and also in Persian, Hebrew, and Armenian, and in French in some classes of the Roman Catholic mission schools.

Syllabus of Subjects. The normal school course is divided into Primary, Intermediate, and Secondary. In all three cases the courses

of study are on paper very wide, but as the certificates are granted on a limited number of subjects the tendency is for schools to concentrate on the required subjects. For the Primary Certificate the subjects of examination are: Arabic, English (studied in the last two years), Social Sciences (History, Geography, Civics), and Arithmetic including Mensuration, Science, and Hygiene. The standard is low. For the Intermediate Examination the subjects are: Arabic, English, Social Sciences (as above), Mathematics (Arithmetic, Algebra, Geometry), Natural History and Hygiene, Physics and Chemistry. The standard, again, is low. The examination demands little more than memory by rote.

For the Secondary Schools examination there is a division of subjects roughly into 'literary' and 'scientific'. The official groups are:

(*a*) Languages (Arabic and English, Persian, &c.).
(*b*) Social Sciences (Ancient and Modern History, Geography).
(*c*) Mathematics (Algebra, Geometry, Trigonometry).
(*d*) Natural Sciences: i. Biological (Zoology, Botany); ii. Physical (Physics, Chemistry).

Candidates for this examination *must* take (1) Arabic; (2) English; (3) two subjects each from two of the three groups *b*, *c*, *d*; (4) one subject in the group not elected under (3). There are, therefore, seven subjects. Girls do not have to reach the same standard in all subjects as boys (e.g. Mathematics). The standard in the past has been extremely low, except perhaps in Arabic, but it is now improving. The examination places the emphasis on memory work. There are set textbooks in each subject and questions are confined to the text-books. It is a fair estimate to state that the examination is at least two years behind the standard of the English Leaving Examination, but naturally a few students show very great capacity. In the past the examination has been notorious for its corruption, but this is no longer the case.

The religious minorities—Christians and Jews—are provided with schools conducted by their own communities but within the government system and classified as government schools. Many Christian and Jewish children, however, attend the general government schools in which the majority of the pupils are Moslems. Under the law any form of religious proselytism is forbidden. Religion is taught in all the government schools, but pupils belonging to a religious minority in the school are permitted to absent themselves from that instruction. If the number of minority pupils exceeded 25 the Government for a time provided religious instruction for them, but this practice

seems to have lapsed. This system applies only to the primary schools; in secondary and higher education there is no attempt to separate members of the different communities.

Adults. The most remarkable educational development of the early days of the Iraqi State was the establishment of the *Mahad al Ilmi*, a society for providing reading matter for its members and for organizing lectures for adults and evening classes for illiterates. Founded in Baghdad early in 1922, its success was immediate. It spread at once to the provinces, despite discouragement by the Government which suspected it of political designs. This discouragement had the effect of concentrating its activities on education in the narrow sense. Within two years it claimed more than 5,000 members distributed over 40 centres. These numbers were later reduced because the founders lost interest, but rose again after the classes had passed entirely under government control. With government encouragement and the assistance of the Ministry of Education and the municipalities, many new activities were rendered possible. In 1924 the Mahad al Ilmi opened a commercial school and night classes for working women, and by 1940, 157 schools for illiterates existed, attended by over 9,000 persons.

Higher Education

A beginning was made with this when in 1924 the Law School, a survival from Turkish days, hitherto under the control of the Ministry of Justice, was transferred to the Ministry of Education and steps were taken to reorganize it and raise its status. This was more an institution for higher studies than a school of law in the strict sense. Admission was limited to graduates from the secondary schools, and it was said at the time that its programme was too wide to produce really competent lawyers and too legal to provide a good general education.

Iraq has still no university, despite ambitious schemes for the foundation of one, but there is a College of Medicine (331 students) (p. 409) and a College of Pharmacy (113 students), a Higher Institute for Training Teachers (321 students), a College of Law (541 students) developed from the Law School, all co-educational, and a Military College supported by its own secondary school (p. 398). A number of promising students are sent to the American University at Beirut or to England for their higher education. Some students proceeded to European universities at their own expense. Thus in 1924 there were four Iraqi students at the University of Oxford, one or two at

German universities, and about 120 at Beirut. In addition there was one government scholar studying agriculture at the University of California and another studying education at Columbia University, New York.

The *Department of Antiquities*, formed as soon as the country had settled down to some semblance of peace, was at first attached to the Ministry of Communications and Works, but was transferred in 1926 to that of Education. In a country so rich in archaeological sites of exceptional interest such a department was a necessity. As soon as the department was constituted, the work of excavation, which had been interrupted by the war, was resumed. A Law of Antiquities was published in September 1924 and the Baghdad Museum, at first a simple room in the Sarai, was opened in the same year. As in other Middle East countries of great archaeological interest, the Department of Archaeology has the first claim on 'finds' for the enrichment of its museum. There is also a new Museum of Islamic Art at Baghdad.

Agriculture and Land

Despite the fact that Iraq is almost entirely an agricultural country, the various departments which normally would be comprised by a ministry have only once formed a Ministry of Agriculture, for the short period between 1927 and 1930. After having been split up at various times between the Ministry of the Interior and that of Public Works, the Department of Agriculture, Veterinary Department, and Irrigation Department are now under the Ministry of Economic Affairs. These departments are concerned directly with agriculture. Three departments are concerned with the ownership and tenure of land: the Tapu or Fief Department, the Miri Department, and the Department of Waqf. The Tapu Department, which is under the Ministry of Justice, keeps the land registers and deals with the sales and lease of Tapu lands (p. 442), while the Miri Department, attached to the Ministry of Finance (1930), deals with 'simple Miri' land (p. 444). The Survey Office, which is also much concerned with the Irrigation Department, is now attached to the Ministry of Economic Affairs. The Department of Waqf, concerned with the administration of Waqf lands, is semi-autonomous (p. 402). The system of land tenure is described in Chapter X.

CHAPTER IX

PUBLIC HEALTH AND DISEASE

SINCE 1918 great progress has been made in the provision of medical facilities, and much knowledge has accumulated regarding the most prevalent diseases. Measures taken for the control of some of the most important infectious diseases have achieved noteworthy success. Without vital statistics, however, no exact appraisement of the public health of the country is possible. Births are recorded only in the large towns, and there inadequately. The causes of death in towns are still often decided by subordinate health officials and in rural areas they are frequently not determined at all. Populations and migration figures are not accurately known. Ages as given by the people are unreliable. Nevertheless hospital and dispensary returns, which are published in detail, afford much information concerning public health in Iraq.

PUBLIC HEALTH

Administration. The Director-General of Health is attached to the Ministry of the Interior. Under him is an Iraqi Inspector-General of Health Services, and there is a British public health adviser. The health departments of Baghdad city and of Basra port are directly under the Central Health Department. In each province a senior medical officer receives from the doctors of qadhas and nahiyas monthly reports dealing with diseases and other health matters, from which he prepares a monthly report for the whole province, for submission to the Central Health Department. He is also responsible for the administration of hospitals, dispensaries, and other medical institutions in his province and for measures to control the spread of communicable diseases.

Personnel. In 1935 there were only 273 doctors in Iraq, of whom 168 were in the Government Civil Health Service, 28 in the Iraqi Army, and only 77 devoting their whole time to private practice. Of the latter, 65 resided in the chief towns: Baghdad (40), Basra (10), Mosul (10), Amara (3), and Hilla (2); but most of the official doctors also take some private practice. Nine out of ten patients who receive modern treatment get it in government institutions. But there is a real shortage of qualified medical practitioners. Allowing 1 for every 3,000 of the population, Iraq needs at least 1,300 doctors, and efforts are

now being made to increase the number of medical students. In 1936 there were still 10 British specialists and technical officers.

In 1935 there were 11 British nursing sisters in the large hospitals of Baghdad, Basra, and Mosul. In Baghdad the Royal Hospital nursing staff is superintended by 13 French Dominican nursing sisters. The rest of the nursing service is Iraqi. Male dressers are employed in male wards.

Education. The Royal College of Medicine of Iraq was founded in 1927, and housed in 1930 in new buildings close to the Royal Hospital. A sound all-round medical education is provided, and by 1935 from 15 to 20 well-trained Iraqi doctors were graduating annually. The college has since been enlarged and in time should make good the inadequacy of medical aid in Iraq. The medical course lasts five years. Clinical instruction is given in the Royal Hospital, where the new out-patient department has an average daily attendance of 1,000. In the precincts of the hospital are the new Central Pathological Institute, the Vaccine Lymph Institute, the X-ray Institute, and the Lunatic Asylum. All these contribute to the medical students' curriculum.

Nurses are trained in a Baghdad nursing school and at the Basra and Mosul hospitals. In Baghdad there is also a midwives' training institute. A health school in Baghdad trains subordinates as assistant pharmacists, dressers, vaccinators, and sanitary inspectors, to take charge of the smallest class of rural dispensaries. There were 287 such officials in the Health Service in 1934.

No medical officers are specially trained to organize and administer the public health service of the large towns on modern lines, but the importance of preventive medicine is beginning to be recognized and plans are being made to develop it.

Hospitals. In 1943 public hospital accommodation, concentrated in provincial headquarters, totalled 3,236 beds. The largest hospitals are in Baghdad (625 beds), Basra (251), Mosul (227), Nasiriya (100), and Sulaimaniya (84). The hospitals of Baghdad, Basra, and Mosul are modern, and many of the smaller have been rebuilt in recent years. There are separate isolation hospitals at Baghdad, Basra, Erbil, Kirkuk, and Nasiriya, and Eye Hospitals at Baghdad, Basra, and Hilla. The Lunatic Asylum at Baghdad provided for 140 patients. There is separate hospital accommodation for prostitutes in Mosul and Basra, and a leprosy hospital with 220 beds at Amara.

Private hospitals, mostly at Baghdad, have 256 beds, while the I.P.C. have their own hospital at Kirkuk.

The number of dispensaries has increased greatly in recent years, and they now exist in all villages which are the centres of qadhas and nahiyas, and in many others, with either a doctor, a sanitary official, or a trained dresser in charge. The extension of the health services since 1935 has been one of the main achievements of the State's Five Year Plan (p. 303), the number of hospital beds alone having doubled in this period.

There is a maritime quarantine station at Fao and three land quarantine stations—at Khanaqin and Baquba for the Persian frontier, and at Ramadi for the Syrian. The two modern airports at Baghdad and Basra are equipped as sanitary aerodromes in accordance with the stipulations of the International Convention.

Progress. Successful attempts to diminish the prevalence of infectious diseases prompted the Government in 1935 to initiate a five-year health plan. The salient features were: (1) to raise the standard of medical education; (2) to develop nursing and midwifery services; (3) to increase the number of beds in hospitals by 500 a year; (4) to raise the number of fixed and mobile dispensaries to not less than 200 (4 dispensaries for each qadha); (5) to found two institutions for the treatment of tuberculosis and one for leprosy; (6) to provide hospital accommodation for infectious diseases at provincial capitals; (7) to establish health stations at frontier posts; (8) to intensify the campaigns against venereal disease, malaria, and intestinal infections; (9) to provide safer drinking-water; (10) to enforce the anti-plague measures in Baghdad; and (11) to endeavour to reduce the high infant mortality rates.

Vital Statistics

The annual Statistical Abstract of the Government of Iraq contains much information concerning the incidence of diseases, but it contains little about vital statistics. The section devoted to this subject is prefaced with the remark, 'All figures relating to vital statistics are only those which are officially registered by the authorities. A great deal escapes registration for which no estimates are yet available.' Births, infant mortality rates, and the causes of death in the three chief towns are tabulated, but in the absence of information elsewhere it is impossible to calculate birth-rates or crude death-rates. Both are high.

Infant Mortality. The death-rates of infants under 1 year of age per 1,000 births in Baghdad, Mosul, and Basra for 7 recent years were:

Year	*Baghdad*	*Mosul*	*Basra*
1934	252	229	328
1935	251	189	356
1936	275	198	258
1937	249	212	224
1938	257	166	250
1939	234	188	231
1940	252	190	295

These high rates, four or five times higher than those of advanced western countries, are comparable with those of most Asiatic towns of similar size, and indicate very low standards of public health. The rates in the villages and smaller towns are almost certainly higher.

The causes of the death of infants under 1 year of age in 1939 in the same towns are tabulated below as percentages of the total deaths at this age:

Cause of death	*Baghdad*	*Mosul*	*Basra*	*Average*
Marasmus	29	65	15	36·3
Diarrhoea, &c.	20	9	19	16·0
Fever and Malaria	13	2	33	16·0
Premature birth	14	6	16	12.0
Infectious diseases	5	3	6	4·7
Respiratory diseases	0	5	5	3·3
Other diseases	19	10	6	11·7
	100	100	100	100·0

General Mortality. The causes of death are available only for the three large towns. Respiratory diseases head the list in Baghdad; fever and malaria in Basra; intestinal diseases in Mosul. In the three towns combined, over a period of nine years, 102,743 deaths were recorded. The causes of those deaths, expressed as percentages of this total were:

Intestinal diseases (incl. marasmus)	20·2 per cent.
Respiratory diseases	19·2 ,,
Premature birth and debility	9·5 ,,
Fever and malaria	7·2 ,,
Old age	6·9 ,,
Tuberculosis	6·2 ,,
Infectious diseases	5·9 ,,
Heart diseases	5·9 ,,
Accidents and violence	3·1 ,,
Kidney diseases	2·2 ,,
Nervous diseases	1·1 ,,
All other causes	12·6 ,,
	100·0 per cent.

Morbidity. The number of patients treated at all institutions in Iraq in 1939 was 3,496,945 as compared with 4,093,735 in 1938. Of

the 1939 total, 19·1 per cent. were suffering from epidemic, endemic, or infectious disease; 21·2 per cent. from eye diseases; 18·9 per cent. from disease of the digestive system; 10·8 per cent. from skin diseases; 7·3 per cent. from disease of the respiratory system. The number of cases of *communicable* diseases treated are given in the table below, but they differ considerably from the total numbers *notified* to the Health Department. The total notified cases of the more important of the notifiable diseases are given in brackets.

Disease	Cases	Disease	Cases
Malaria	490,319	Measles	1,813
Trachoma	352,662	Typhoid and paratyphoid (1,256)	745
Syphilis (1,382)	34,392	Erysipelas	540
Soft chancre	5,237	Leprosy (179)	373
Gonorrhoea	20,054	Puerperal fever	260
Dysentery (15,725)	32,039	Plague	0
Schistosomiasis	17,449	Diphtheria	215
Tuberculosis, pulmonary (3,539)	9,024	Tetanus	157
,, other forms	2,252	Anthrax	102
Influenza	13,836	Typhus fever (45)	27
Small-pox (111)	185	Cerebrospinal fever (112)	110
Whooping-cough	2,525	Scarlet fever	14
Ankylostomiasis	6,147	Cholera	0
Mumps	2,206		
Sandfly fever	165	TOTAL	992,848

The small number of cases of syphilis notified compared with the number of cases treated is most marked. On the other hand, there are more cases of typhoid and paratyphoid notified than treated.

An analysis of the detailed figures by provinces shows that notifications are most complete in those provinces where medical relief is best organized. Moreover, annual increase in the number of cases treated does not necessarily denote increase in disease incidence, but may indicate increased hospital or dispensary services.

DISEASES

The most important diseases affecting the public health of Iraq are: malaria, trachoma and acute ophthalmia, tuberculosis, venereal diseases, intestinal infections (notably dysentery, enteritis of infants, and diseases of the typhoid group), and schistosomiasis. The pestilential diseases, cholera, plague, smallpox, and typhus, are a permanent menace. For European troops operating or stationed in Iraq heat-stroke is a serious danger. These diseases and a few others of special interest or importance call for detailed consideration.

Malaria

Malaria is endemic throughout Iraq, but there are marked differences in the degree of endemicity in different parts of the country. Before the British invasion of Iraq in 1914 little or nothing was known of the amount of malaria prevailing there. During the subsequent years a comprehensive malaria survey was made by Christophers and Shortt.[1] They showed that the physical divisions of the country—the alluvial plain of the Tigris and Euphrates, the western and southern deserts, and the Assyrian plains and foothills—each had its own set of malarial conditions. Throughout the plains in summer there is so continuous and intense a desiccation that conditions would be incompatible with malaria, unless water were brought on to the land from perennial rivers. The breeding-places of *Anopheles* mosquitoes are peculiarly dependent upon irrigation. High-level canal irrigation is not inherently dangerous, because none of the local species of *Anopheles* breeds in canal distributaries. But flooding and leaks caused by faulty construction or neglect provide mosquito breeding-places, as does the lack of drainage and waterlogging caused by careless cultivators. It is these which may result in high malaria endemicity. Where there are no high-level canals and where the river is below the level of the surrounding country, lift-irrigation (p. 440) is practised over limited strips of land along the river-banks. Water raised in this way is too valuable to waste and does not lead to much mosquito breeding. This is possibly one reason why there is little malaria in Baghdad city. Lower down the delta the level of the river in the flood-season is above that of the surrounding country. The channels leading water to the land are often carelessly made and much water runs to waste. Low-lying or excavated land is turned into swamp and much breeding of *Anopheles* results. The date-groves along the Shatt al Arab have a special form of tidal irrigation (p. 440). When the flood-levels in the river are very high the water in the ditches may overflow and convert depressed or excavated areas into swamps. At low river-levels portions of the channels may become stagnant. In both of these ways mosquitoes find favourable breeding-places.

In the Assyrian plains and the foothills, pools in river-beds and especially in small non-perennial tributaries are responsible for prolific breeding of *Anopheles*.

Serious outbreaks of malaria in Iraq are associated with abnormal

[1] *See* Bibliography, Appendix F.

floods of the rivers in the plains and abnormal rains in the hills. The flood season caused by melting snow in the hills is from March to May or June (figs. 3, 4). The rainy season is from November to March (p. 175); if excessive, numerous stagnant pools are left in the beds of rivers and of streams in the hills.

Of the anopheline mosquitoes, *Anopheles pulcherrimus* is the characteristic and dominant species in the Shatt al Arab region, in the lower Tigris and Euphrates deltas, and in the central plain of Iraq. It is an Asiatic species and has not been reported west of the Syrian desert. Its power of flight and resistance to desiccation explain its dominance over other species in the alluvial desert. It breeds in a variety of situations, but the most favourable conditions are found in swamps. Fortunately it is not a very effective vector of malaria, and where no other carrier is present, as in the central plain of Iraq, malaria is generally of low endemicity. This species becomes less common northwards, as swamps diminish in number and extent.

Anopheles stephensii is also found in the Shatt al Arab region and in the lower Tigris and Euphrates deltas. It has been reported as far north-west as Karbala; on the Tigris it is rarely found north of Amara. Nowhere in Iraq is it found in such large numbers as is *A. pulcherrimus*, but it is a much more effective vector of malaria, and is responsible for most of the malaria of southern Iraq. It breeds in excavated ground and also in partly blocked irrigation channels and in casual water. This species is an active carrier of malaria in Bombay, where it breeds in wells.

Anopheles superpictus is the most important vector of malaria in northern Iraq; it has not been reported south of Baghdad. Its natural breeding-places are the pools in the beds of streams and rivers, but larvae are sometimes found in flowing water and in irrigation channels. The species has been found breeding at altitudes of 5,000 feet. It has a wide distribution and is an important transmitter of malaria in Macedonia and other Mediterranean countries; it also occurs in the extreme north of India.

Anopheles maculipennis, the predominant anopheline of Europe, occurs also in northern Iraq where its distribution is similar to that of *A. superpictus*, though it does not appear to be an important vector of malaria.

Other species of *Anopheles* have been found in Iraq, but none seems to be important in the transmission of malaria.

In 1939 there were 490,319 cases of malaria treated in the medical institutions of Iraq—14 per cent. of all patients treated. The percent-

age of sufferers from malaria among patients seeking relief from all causes of sickness is the only available measure of malaria endemicity in the provinces, though it is not a very satisfactory index. In 1939 the percentages in the different provinces were:

Baghdad	4·7	Dulaim	9·4
Basra	22·0	Hilla	25·9
Mosul	17·9	Karbala	20·6
Amara	10·2	Kirkuk	12·7
Erbil	10·9	Kut	8·3
Diwaniya	14·4	Muntafiq	12·8
Diyala	21·4	Sulaimaniya	13·0

The spleen-rate, or the percentage of children with enlargement of the spleen, is one of the most valuable indices of endemic malaria. The most comprehensive figures available for Iraq are given by Christophers and Shortt.[1] They examined 7,981 children in many parts of the country. The results showed that the Shatt al Arab and the lower Tigris and Euphrates deltas had a moderate spleen-rate indicative of moderate endemicity. In the upper plain of the rivers as far as the Jabal Hamrin, spleen-rates were low or nil, indicative of very feeble endemicity. At Karbala, however, a curious example of localized hyperendemicity was found with a spleen-rate of 81 per cent. In the Mosul and Zab submontane areas spleen-rates of 77 and 66 were indicative of hyperendemic malaria. In the Diyala submontane area the spleen-rate was only 6. The Persian plateau had a nil spleen-rate. The experience of British troops in these areas was in general in keeping with these findings. Baghdad city has a nil spleen-rate and no endemic malaria.

Annual Cycle. Cases of malaria occur in all months of the year. They are least numerous in the first three months. Thereafter the incidence curve rises to a maximum in July. In August and September there is usually a slight remission followed by a secondary rise in October. The percentage monthly incidence of all cases of malaria treated over a period of 17 years was:

January	4·6	April	6·1	July	12·9	October	10·7
February	4·2	May	7·9	August	10·7	November	9·9
March	5·2	June	11·8	September	8·8	December	7·2

These figures of clinically diagnosed malaria undoubtedly include a proportion of other febrile conditions such as sandfly fever or influenza. Moreover, it is impossible to distinguish in all cases primary infections of malaria from relapses. The monthly fluctuations in incidence indicate, however, that malaria is the preponderant

[1] *See* Bibliography, Appendix F.

disease so diagnosed. The gradual increase in prevalence from February to July is associated with an increasing temperature and increasing anophelism. The subsequent lessened incidence is associated with a reduction in river-level, desiccation of breeding-places, and other adverse conditions. The increase in October and November follows a reduction in the great heat and an occasional small rise in river-level and is associated with a second general increase of anophelism. The decline of fevers from November to February is related to winter conditions, but there was active transmission of infection among British troops in the Mosul area in December 1918; the average mean temperature of that month at Mosul was 56° F.

All three forms of the malaria parasite occur in Iraq, but *Plasmodium vivax*, the benign tertian parasite, is much the most common. Malignant tertian malaria, *P. falciparum*, is somewhat surprisingly rare. The classification of cases treated in 1939 was:

Benign tertian, *P. vivax*	91·3 per cent.
Subtertian, *P. falciparum* . . .	1·2 ,,
Quartan, *P. malariae*	1·4 ,,
Malarial cachexia	0·6 ,,
Undefined	5·5 ,,
	100 per cent.

Experience in the War of 1914–1918 confirmed the preponderance of *P. vivax* infections but suggested that *P. falciparum* was much more in evidence than is shown by the 1939 figures. The percentages of *P. falciparum* infections among British and Indian troops were: at the base 11·4 and 23·4, and up country 28·5 and 38·9. The number of quartan infections among the troops was insignificant.

Blackwater Fever. In 1939, 28 cases of blackwater fever were reported from Basra and 2 from Baghdad.

Eye Diseases

About one-third of all cases of infectious disease treated in Iraq are cases of trachoma, which in 1939 numbered 352,662. In 1926 the chief of the Ophthalmic Department in Baghdad estimated that two-thirds of the Iraqi population had been afflicted by trachoma and that very few of those who contract the disease escape without some impairment of eyesight. This chronic and devastating disease therefore is of very great public importance. Facilities for treatment have been increased, and each year greater numbers of patients present themselves for treatment, but more trachoma clinics are required.

Other inflammatory eye diseases are also prevalent. Cases of con-

junctivitis treated in 1939 numbered 314,110. Epidemics of acute contagious ophthalmia in the towns, caused by the gonococcus, are of frequent occurrence. The disease is not so virulent as the gonorrhoeal ophthalmia of England, and if cases are treated early and vigorously useful sight can usually be retained. If left untreated, or treated by the local method of instilling milk and sugar into the eyes and then sealing the eyes with a poultice of cow-dung, blindness is almost inevitable. A blind child is a useless member of society in Iraq and generally soon dies from some intercurrent disease.

Cataract is not as common in Iraq as in India.

Schistosomiasis

This is an infection of human beings with a trematode worm, *Schistosoma haematobium* being the species responsible for the disease in Iraq. The worm is small—the female is only 20 mm. long and the male little more than half that length—and is generally found in the tissue of the urinary bladder. The eggs of the worm which are excreted with the host's urine contain ciliated embryos called miracidia. These after a complex life-history dependent upon access to water containing a fresh-water snail, *Bulinus truncatus*, escape in a developmental form (*cercariae*) from the snail into the water, and can penetrate the skin of man. They then proceed to the bladder of the host, where they reach maturity in about six weeks.

Urinary schistosomiasis is extremely prevalent throughout Iraq. Boulenger (1919) reported that in both Tigris and Euphrates districts about one-fifth of the male Arabs examined were infected. Hall (1925) found schistosomiasis to be exceedingly prevalent on the banks of the Euphrates from Hindiya to the sea, particularly in rice-field areas. In Diwaniya four-fifths of the population and in Basra 334 out of 711 schoolchildren were infected. Mohammedan children were more prone than young Christians and Jews, because they bathe and wash more. Outbreaks have occurred among British troops from bathing in infected pools.

In most cases of this disease the victim suffers little if at all. The passage of blood-stained urine appears to be regarded as a normal event by most Iraqis. Sometimes, however, most painful and distressing symptoms may result, and the sufferers then find their way to hospitals and dispensaries.

A comprehensive study of *Schistosoma haematobium* and its life-cycle in Iraq by Mills, Machattie, and Chadwick was published in 1936. They found that *Bulinus truncatus* was the mollusc responsible

for the spread of infection. In December when the really cold weather commences *Bulinus* disappears and is little evident in ditches until the end of May. It is probable also that the emission of cercariae ceases altogether in the winter months, although the infection may survive in the snail. Thus the risk of infection from December to May should be negligible and would explain why so few enthusiastic duck and snipe shooters have become infected.

In 1939, 17,449 cases of schistosomiasis were treated in the medical institutions of Iraq; 20 per cent. of these were in the Muntafiq province, 19·4 per cent. in the province of Diwaniya, and 17·6 per cent. in that of Basra. Only 6 cases were treated in the province of Sulaimaniya, 12 in Kirkuk, 31 in Erbil, and 56 in Mosul.

Cholera

Iraq has been free from cholera since 1931, but its external communications and geographical situation make it vulnerable to infection. Once infected it is a potentially dangerous distributing centre for infection outside its borders, so that constant vigilance is required by the Health Department.

Very little is known of the prevalence of cholera in Iraq before the War of 1914–1918, but in 1916 cholera broke out in the Turkish force operating east of Kut. When the British attacked and occupied the Turkish position the troops became infected by drinking water from a creek which had been contaminated by faecal matter. Nomadic Arabs in touch with the flanks of both forces contracted and spread the infection, though it was quickly controlled on the British side. Altogether there were 2,852 cases among British troops in the Mesopotamian campaign.

During the inter-war period cholera was epidemic in only three years: 1923, when 1,640 cases were notified; 1927 (1,479 cases); and 1931 (2,472 cases). No case was notified in the intervening years. All cases occurred in the second half of the year, September being the month of maximum incidence. Abadan was the source of infection in 1923, the disease spreading to Mohammerah and Basra, in spite of all precautions. Subsequently cases occurred in all provinces south of Baghdad. Fugitives from Abadan were responsible for outbreaks of cholera in Iraqi towns along the Persian foothills, away from the traffic routes of Iraq.

In a recent epidemiological survey of cholera in Iraq, Heggs (1938) commented on the seven-years' immunity from cholera that the country had then enjoyed. Modern fast transport conditions have

increased the risk of infection, but there is a much more efficient preventive service and control procedure than formerly. The supply of advance information regarding cholera from other countries is one safeguard. Prophylactic inoculation and quarantine are the two chief measures of defence. It is difficult to prevent the entry of disease from Persia across the Shatt al Arab, but the headquarters of the quarantine service of the port of Basra have been moved to Fao, where vessels may be medically inspected whether proceeding to Persian ports or to Basra. On the authorized desert route between Najaf and Medina all pilgrims have to be inoculated against both cholera and typhoid and vaccinated against small-pox, and they must possess a sanitary pass granted only after medical examination. Within the country the importance of diagnosing the first cases of cholera is stressed. Police control of infected populations is difficult, but cordons are established to prevent the smuggling of sick persons to uninfected localities.

The healthy carrier of infection is an added complication. As in typhoid fever, healthy persons as well as convalescents may harbour and excrete the infecting germ for considerable periods. In the quarantine station of Syria, cholera vibrios have been found in the stools of healthy travellers by the desert route from Iraq, who had not been within 50 miles of an infected area.

In 1939 the number of inoculations against cholera carried out in Iraq was 216,956.

Plague

No case of plague has been reported from Iraq since 1936. Until that year outbreaks of plague had occurred in the city of Baghdad every year since at least 1917. The energetic measures taken to combat the disease reduced the number of cases to less than 100 in 11 of those years. The worst outbreaks in Baghdad city were in 1919 (883 cases, 679 deaths), 1922, 1923, and 1926. From 1916 to 1924 plague infection also persisted in the city and port of Basra, where the most severe epidemics occurred in 1918 and 1919, when 489 and 413 cases and 233 and 265 deaths respectively were reported. With the exception of one fatal case in 1930, Basra appears to have been free from plague since 1925. There was one outbreak at Amara in 1918 when 1,000 cases and 415 deaths were reported, but otherwise plague has not been a matter of serious concern except in Basra and Baghdad.

Plague cases have been reported in every month of the year but, as in most countries, there has been a well-marked seasonal prevalence:

four-fifths of all cases have occurred from March to June inclusive, with half of these in May.

Plague is a disease of rats: infection is conveyed from rat to rat, and from rat to man by the rat flea. The incidence of human cases is in certain circumstances a very inadequate index of the amount of rat plague. The closeness of the association of rats with man, the species of rat, and the species of flea are all factors influencing the adequacy of this index. There are large numbers of rats in Baghdad, as in most oriental cities, so that energetic measures for their destruction have been adopted. Nine out of ten of those destroyed were black house-rats (*Rattus rattus*) which are more closely associated with man in oriental conditions than any other species. The other species was the larger shorter-tailed brown rat (*Rattus decumanus*) which frequents drains, basements, and outhouses rather than the human dwelling. Much the most prevalent rat flea is *Xenopsylla cheopis*, the most efficient transmitter of plague infection.

When plague has threatened, recourse has been had to anti-plague inoculation, sometimes on a very large scale. In 1926 more than 141,000 inoculations were performed in Baghdad city. No anti-plague inoculation was necessary in 1939.

Small-pox

This disease appears to be endemic throughout Iraq, but effective vaccination has prevented its being a very serious cause of morbidity or death. Vaccination was made compulsory by the Vaccination Law in 1922 for all infants, for all pupils and students in private or state schools, for all immigrants and refugees, for employees of factories and workshops, and for domestic servants. The numbers of cases and deaths attributed to small-pox during four recent years were: 1936, 198 and 45; 1937, 28 and 2; 1938, 39 and 10; 1939, 111 and 19. In 1939 the provinces affected were Sulaimaniya (88), Kirkuk (12), Amara (9), and Diwaniya (2). The number of vaccinations performed in 1939 was 275,649. The vaccine is manufactured in the Vaccine Lymph Institute of Baghdad.

Typhus Fever

A few typhus cases are reported each year, but no large-scale epidemics have occurred in recent years. There were 207 in 1934 (158 in Kirkuk province); 76 in 1935 (all but 1 in Sulaimaniya province); 2 in 1936; 44 in 1937 (28 in Kirkuk province); 4 in 1938; 45 in 1939 (23 in Baghdad province). Infection has been frequently

imported from Persia, as is indicated by this distribution. Iraqi Kurds are in frequent communication with Persian Kurds and there is seasonal migration across the frontier. Shia pilgrims from Persia have also occasionally brought infection, Kirkuk province being naturally the most exposed to these contacts.

Typhus is a louse-borne infection, which has been most prevalent from April to June. Little is known of the lousiness of the Iraqi, but it is said that the long hair of the tribesmen is invariably infested with lice.

During 1917 and 1918 there were 385 cases of typhus among Indian troops and 149 cases among the British, contracted from Turkish prisoners of war, Arabs, and refugees. A further 59 cases were reported in 1919. The case mortality rate of these military cases was 22·7 per cent.

Preventive measures are directed against lice on clothes and persons. Inoculation has recently been practised in some countries on a large scale, but, though many forms of vaccine have been used, it is impossible yet to dogmatize on its practical value.

Intestinal Infections

Intestinal infections are extremely prevalent in Iraq and they contribute largely to the high infant mortality rates. Contaminated water-supplies, flies, dust, the absence of sanitary methods of excreta disposal, and ignorance of elementary rules of hygiene sufficiently explain this wide prevalence. Prominent among the intestinal infections is dysentery.

Dysentery

In 1939 the cases of dysentery treated in the medical institutions of Iraq numbered 32,039. Of these, 27,888 were diagnosed as amoebic dysentery, 1,395 as bacillary dysentery, and 2,756 were undefined. Only 15,725 cases were notified to the Health Department and of these 15,541 were amoebic; 159 of the amoebic cases and 2 of the bacillary cases ended fatally. Cases were reported from all provinces and in every month of the year. The greatest prevalence was from April to August, but cases of amoebic dysentery were also numerous in December and January.

Dysentery came next to malaria as the chief cause of sickness among British and Indian troops from 1914 to 1918, when the average annual admission rates were 70·3 (British) and 35·7 (Indian) per 1,000. In all other theatres of war bacillary dysentery was much more in evidence

than the amoebic form of the disease, but in Iraq the *Entamoeba histolytica* was the cause of 20 per cent. of acute dysenteries amongst British troops in the forward areas whilst the ratio of incidence amongst Indian troops was almost double. At Basra the ratio of amoebic infections amongst British troops was 40 per cent.

Convalescents from the disease as well as healthy persons with no history of dysentery may harbour encysted forms of *Entamoeba histolytica* in the large intestine, and excrete them, constantly or intermittently. Senekji, Boswell, and Beattie (1939) examined 1,000 apparently healthy individuals. Of these 119 were pilgrims returning from Mecca; the remainder were young men from 18 to 20 years of age. *Entamoeba histolytica* was found in 49·3 per cent. Most of the men came from central Iraq, but there is no reason to believe that such healthy dysentery carriers are more numerous there than elsewhere. It is interesting that the percentage of carriers was higher in Baghdad city than in the rest of Baghdad province, an indication that the higher sanitary standards in the city are insufficient to counteract the spread of infection caused by urban aggregation.

Two essential provisions for the control of dysentery, of both forms, are careful supervision of the water-supply, and the protection of all foodstuffs from the house-fly. A continuous high and moist temperature favours the development of amoebic dysentery.

Typhoid and Paratyphoid Fevers

Fevers of the enteric group are widespread throughout Iraq and are most prevalent from May to November. Cases registered in Iraq in 1939 numbered 826 (typhoid) and 430 (paratyphoid). More than half were notified in the Baghdad and Mosul provinces, but it is doubtful whether the figures indicate a greater incidence there than elsewhere, and no province was free of the disease. Infection is probably common in early childhood among the Iraqis, so that the adult population enjoys a considerable degree of immunity. Cases and deaths in the three principal towns in 1938 were:

	Typhoid		*Paratyphoid*	
	Cases	*Deaths*	*Cases*	*Deaths*
Baghdad . . .	240	8	24	2
Basra . . .	51	8	6	2
Mosul . . .	73	15	151	12

The high case-mortality rate in Mosul is probably an indication that many mild cases went unrecorded.

The results of blood examinations at the Central Laboratory of

Baghdad during the 12-year period 1923–1934 show that the relative incidence of these fevers was: typhoid fever, 75·4 per cent.; paratyphoid A, 8·8 per cent.; paratyphoid B, 15·8 per cent. It is somewhat surprising that paratyphoid B infections are nearly twice as numerous as paratyphoid A. Paratyphoid B is the common infection in most European countries. In India paratyphoid A is predominant, paratyphoid B being extremely rare.

The enteric fevers were responsible for considerable sickness and mortality among British troops between November 1914 and December 1918, when the average annual rates of admission to hospital for these diseases were British 17·5 per 1,000 and Indians 1·96. Before 1918 paratyphoid A was 5 times commoner than paratyphoid B and 3 times commoner than typhoid. In 1918 there was a notable decrease in the proportion of paratyphoid, because of improvement in vaccine. The case-mortality rates for the three fevers during 1916–1918 were: typhoid fever, 11·4 per cent.; paratyphoid A, 3·6 per cent.; paratyphoid B, 7·5 per cent. These paratyphoid mortality rates are higher than they are normally in peace conditions. Though Indian troops showed a marked insusceptibility to enteric, cases among them tended to be much more severe than among British troops.

A small percentage of convalescents from enteric fevers continue to harbour and excrete the causative germs for long periods. These carriers of infection play an important role in the spread of the disease. Polluted water-supplies, flies and dust are potential vehicles of infection. All visitors to Iraq should be protected by inoculation against typhoid and paratyphoid A and B.

Intestinal Parasitic Worms

The infection rate of Iraqis with intestinal worms is high. The number of cases of diseases 'due to Helminths' treated in medical institutions in 1939 was 44,852, 1·3 per cent. of total attendances. The most prevalent is the hookworm (*Ankylostoma duodenale*), although the number of cases of ankylostomiasis treated in 1939 was only 6,147. Man can harbour a certain number of hookworms with no appreciable discomfort, but he feels better without them and has a higher productive capacity. Heavy infections cause serious illness and intense anaemia, but these appear to be infrequent in Iraq, though, from examinations made, it would seem that more than one-quarter of the population, drawn from all over the country, is infected.

The larva of *A. duodenale* gains access to the body through the skin, generally of the ankle or foot. Infection is generally contracted by

walking unshod on ground polluted with human faeces. The larvae make their way through blood-vessels, heart, lungs, trachea, throat, and stomach to the small intestine, where they reach maturity and attach themselves to the gut wall. The worms are small, the males being 6 to 8 mm. in length and the females 10 to 12 mm.; they are readily killed by drugs, but with the present lack of even elementary sanitation early reinfection is probable.

After *A. duodenale* the round worm (*Ascaris lumbricoides*) is second in prevalence. Of no great pathological importance, it may give rise to fever and other symptoms in children. Evidence of *Ascaris* has been found in 13·6 per cent. of apparently healthy Iraqis.

The tape worm (*Taenia saginata*) is less common in Iraq than in Syria and Lebanon, possibly because Iraqis eat well-cooked meat; it was found in 0·6 per cent. of 1,000 persons examined.

Hydatid Disease

Man may act as the intermediate host of the small cestode worm, *Echinococcus granulosus*, the adult form of which is found in the dog's intestine. Infection results from the ingestion of the eggs of this worm. The larvae that escape from the eggs penetrate the gut wall and not infrequently reach the liver, lung, or brain. The larva in process of development forms multiple cysts which may attain a very large size. The position and size of these hydatid cysts determine the nature and severity of the disease, and surgical operation is often necessary.

Iraq is prominent among countries in which this disease occurs. Between 1935 amd 1938, of all admissions to the Royal Hospital at Baghdad, 107 or 1 in 319 were suffering from it. It may be possible to eliminate the disease in large towns, but hardly in rural areas where the association of man with dog is close.

Undulant Fever

Brucellosis or undulant fever is a febrile disease of long duration, caused by a minute organism *Brucella*, communicated to man from cattle, sheep, or goats. There are two closely related species, *B. abortus*, the cause of contagious abortion of cows, and *B. melitensis*, the infection common in goats and sheep. In man *B. melitensis* is the cause of that form of undulant fever that was once called Malta fever, which is endemic in Iraq and not infrequent.

Only 17 cases of undulant fever were notified in 1939, and only 10 were treated in medical institutions, but these figures bear no relation

to the actual incidence of the disease, which has no very characteristic clinical features, unless they be the diversity of symptoms and the prolonged fever. It may be confused with very many other febrile diseases unless recourse be had to laboratory examination.

In Iraq a study of the sera of patients which had been sent for laboratory examination for evidence of other infections revealed a considerable prevalence of brucellosis. Of 350 sera sent for typhoid reactions, 27 reacted positively with *B. melitensis* and the organism was isolated from 9 out of 10 of these positive sera. Evidence of brucellosis was also found by the examination of sera sent to the laboratory for the diagnosis of syphilis. The great variety of symptoms displayed by this disease is shown by the fact that cases had been originally diagnosed as one or other of the following diseases: enteric fever, malaria, sciatica, arthritis, lumbago, tuberculosis, influenza, pneumonia, and liver abscess. The disease is very rarely fatal, but the average duration of illness in ambulatory cases was as much as 44 weeks before diagnosis, and of cases confined to bed 16 weeks.

Samples of milk and blood from cattle, goats, and sheep, obtained from Baghdad, Erbil, and Sulaimaniya, showed evidence of heavy infection with *Brucella* in all three areas. Human infection arises most frequently from the consumption of raw milk or milk products. Close association with infected animals is a less common cause of human infection.

Leishmaniasis

This is the name given to a group of diseases caused by the invasion of the body by a small parasite of the genus *Leishmania*. The visceral form of the disease, a serious febrile condition, caused by *L. donovani*, and sometimes called kala-azar, does not appear to occur in Iraq. *L. tropica* is the cause of dermal leishmaniasis, characterized by single or multiple ulcers of the skin, usually without detriment to the general health of the patient. The ulcers are often slow to heal and may leave unsightly scars and disfigurement. Oriental sore and Baghdad boil are two of the names given to this complaint. It is extremely prevalent throughout Iraq. The vast majority of cases receive no skilled medical treatment. Between the years 1927 and 1939, 32,131 cases were treated in the medical institutions of Iraq.

Infection with *L. tropica* renders the patient immune to further attack, but the immunity is somewhat slow to develop, only becoming operative when the original sore has completely healed. It was formerly the custom among Jews in Baghdad to inoculate their

children on the covered parts of the body with material obtained from a Baghdad boil, to prevent the development of unsightly scars on face and hands. The procedure is still practised to some extent. A recent report describes the successful inoculation of some 200 persons with a live culture of *L. tropica*, a process that is vastly preferable to inoculation with material from a Baghdad boil with its attendant risk of quite other infections. Such immunization with a live culture of *L. tropica* is worth consideration in places in which cutaneous leishmaniasis is very prevalent.

Natural infection in both visceral and dermal leishmaniasis is transmitted by certain species of sandfly.

Sandfly Fever

Sandfly fever is a specific fever of a few days' duration, causing no mortality, but incapacitating while it lasts. It is caused by an ultramicroscopic organism which is transmitted by a species of sandfly or *phlebotomus*: in Iraq by *P. papatasii*. Only 165 cases of sandfly fever were recorded in Iraq in 1939, but probably only a very small percentage of cases are presented for treatment. In endemic areas a high proportion of Iraqis appear to be immune, apparently as the result of previous infection. The arrival of non-immunes in numbers, such as an expeditionary force, may provide dramatic evidence of the presence of infection. No fewer than 29,089 cases of sandfly fever were admitted to Base hospitals from the Mesopotamian Expeditionary Force from July 1917 to December 1918. The average duration of treatment of these patients was 11·7 days.

The sandfly is exceedingly minute: it can pass through the mesh of an ordinary mosquito net with 16 to 18 holes to the inch. A finer net, with 22 holes to the inch, which can exclude sandflies, is oppressive in a hot climate, but should be used if possible for the treatment of cases in hospital, during the first 48 hours of fever when the patient is infective for sandflies. The upper stories of a building are less likely to harbour sandflies than the ground floor. Overhead electric fans afford protection from sandflies.

Syphilis

Syphilis is widespread in Iraq. The number of cases treated in 1939 was 34,392. It is a disease caused by a parasite *Treponema pallidum*, infection with which in Europe is almost invariably transmitted by sexual intercourse. Among the nomadic and semi-nomadic tribesmen of Iraq, Syria, and some adjacent territories there is a form of syphilis, called *bejel*, caused by a parasite apparently identical with *T. pallidum*,

which is not a venereal disease. It is pre-eminently a disease of childhood. The parasite is passed from person to person by immediate non-sexual contact, the transfer being favoured by general uncleanliness and lack of segregation. The use of a common drinking-bowl, kissing and fondling of infants, and possibly flies, lice, and fleas, may also be factors in the spread of the disease, which is highly contagious. Adults who have escaped infection in childhood may thus contract it.

Hudson (1937), in writing of bejel as it occurs among the semi-nomads of the Euphrates valley in Syria close to the Iraq border, states that 'seventy-five per cent. of the adult villagers say that they have had bejel, and from a consideration of the histories, the positive serological reactions, and the syphilitic lesions and scars, it is permissible to conclude that over 90 per cent. of the adults are syphilitic'. The tribesmen speak of the disease without shame, and distinguish it from venereally acquired syphilis which is largely confined to the towns. Clinically bejel is not so serious a disease as is syphilis of venereal origin and it does not appear to decrease fertility or increase the rate of miscarriage, as does syphilis. The proportion of bejel is highest in the provinces of Mosul, Dulaim, and Amara. These three have a low incidence of gonorrhoea. The fellahin and nomadic tribesmen have a strict sexual code which reduces promiscuity to a negligible quantity in the country districts, but their very low standard of personal hygiene, in other respects, facilitates the transmission of contagious diseases generally.

Venereally acquired syphilis is abundant in the towns. Several writers have stated that this disease is milder in form than in the West. The Health Department has devoted much attention to combating the disease. Brothels and prostitutes are inspected and controlled, and treatment centres have been multiplied.

Gonorrhoea

The total number of cases of gonorrhoea treated in medical institutions in Iraq in 1939 was 20,054, nearly two-thirds being in Baghdad province. This is probably an indication of facilities for treatment and more efficient control in Baghdad rather than that the disease is more prevalent there than elsewhere. Gonorrhoea is certainly very prevalent in the towns of Iraq.

Tuberculosis

Tuberculosis is an important cause of sickness and death in Iraq, but published information is insufficient to determine its prevalence.

Tuberculosis was returned as the cause of 6·2 per cent. of the total deaths registered in the three principal cities of Iraq over a period of 9 years. In England and Wales about 5·5 per cent. of all deaths are due to tuberculosis, and the total death-rate of Iraqi cities is certainly more than double the English rate. In 1939, 11,276 cases of tuberculosis were treated in medical institutions in Iraq; of these 9,024 were pulmonary cases. Cases of pulmonary tuberculosis were notified from all provinces, most being reported from Diwaniya and fewest from Erbil.

Leprosy

Cases of leprosy treated at all medical institutions in 1939 numbered 373. Registered cases, presumably new, were 179 in that year. Cases were reported from all provinces (Amara (73); Basra (24); Muntafiq (21); Baghdad (19); and Diwaniya (10)). There is a leprosy hospital at Amara.

Heat-stroke

Experience during the War of 1914–1918 showed that heat-stroke is prominent among the perils of campaigning in Iraq during the hot weather. At the first battle of Ramadi 321 cases of heat-stroke occurred in one afternoon (8 July 1917),[1] out of a total casualty list of 566.

The climate of Iraq has been fully described in Chapter IV. The relatively cool nights even in the hot months make Iraq a possible country for the white man living in good peace-time conditions. For troops under canvas in July and August the climate may be dangerous; day temperatures of 135° to 140° F. are not uncommon in double-fly tents during a heat wave. Severe heat waves tend to occur about every third year; the maximum shade temperatures exceed 120° F. for from 3 to 5 days. Heat-stroke results from the cumulative effects of exposure to excessive heat; most cases occur on the third or fourth day of the heat wave and symptoms commonly develop in the night or early morning when the atmospheric temperature has fallen considerably.

Cases of heat-stroke may be classified clinically as heat syncope, heat exhaustion, and heat hyperpyrexia.

Syncope, or a fainting fit, may occur anywhere in hot stuffy places,

[1] The official temperature at Baghdad on the same afternoon was 122° F. The temperature in tents was 130° F. and in the sun 160° F.

or among heavily laden soldiers on a route march. It is rarely serious, but may be fatal if the patient has a diseased heart. Severe headache and some mental confusion for a few hours is apt to follow recovery from the faint.

Heat exhaustion is characterized by collapse, profuse perspiration, low blood-pressure, nausea and vomiting, and often muscular cramps. The rectal temperature generally reveals slight increase of body temperature, 100° to 101° F.

In *heat hyperpyrexia* the heat-regulating centres of the body fail as the result of undue strain. Sweating stops and when the body temperature reaches 108° F. coma and convulsions ensue. The mortality rate is high. Heat hyperpyrexia is more likely to occur when the atmospheric humidity is high (pp. 173–5), and in the lower delta in and near Basra than elsewhere. The obese, thick-necked, chronic alcoholic is specially prone to heat hyperpyrexia.

In recent years much study has been devoted to the causes and prevention of heat-stroke. Loss of body heat occurs mainly through the sweat glands. Excessive sweating results in the loss not only of water but also of a large quantity of salt, sodium chloride. This loss of salt is an important factor in exaggerating the more serious effects of heat. Army experiments in India showed that after a route march of 9 miles in the hot weather, with a shade temperature of 104·3° F. and a relative humidity of 47 per cent., the average loss of salt per man was 6·8 grammes, and the loss of water between 6 and 8 pints. To maintain efficiency in the hot weather in the tropics a salt intake of about an ounce a day is desirable; about half that quantity is usually available in the diet. Ten grains of salt in a pint of water is quite palatable.

Morton (1944) describing experiences with British troops in Iraq in recent years says that the slogan 'Drink more Water, Eat more Salt' was posted in all dining halls at the beginning of the hot weather. During the heat wave of July 1940, when the temperature was above 120° F. on more than 5 days, extra salt was added to the dietary, and men were warned to avoid constipation. Working hours started earlier and stopped at 11·30 a.m. An ample supply of cool water to which salt was added was available in all workshops and men were encouraged to drink little and often. As a result of these measures only two cases of heat exhaustion occurred, a great improvement on the experience of 1930 during a very similar heat wave.

Recent work seems to show that heat exhaustion and heat hyperpyrexia are due exclusively to overheating of the body and not to any

special property of the rays of the tropical sun. It is remarkable that Morton's paper makes no reference to the importance of sola topees, spine-pads and the like. But it would not be possible to convince men with prolonged experience of work in climates like that of Irāq that suitable head-covering is not a matter of vital importance when working in the sun.

CHAPTER X

IRRIGATION, AGRICULTURE, AND MINOR INDUSTRY

The condition of agriculture in Iraq depends largely upon two special factors, the irrigation works and the peculiar system of land-tenure and tenancy. These two topics are accordingly discussed before the account of agriculture and stock breeding is given.

Irrigation

Origins

In the History chapter reference has been made to the great agricultural wealth of Babylonian and Assyrian Mesopotamia (p. 220) and of Abbasid Iraq (p. 243) which enabled the country to become the base of world-wide empires. This wealth depended on the maintenance of a great system of irrigation canals which it has been the object of recent governments of Iraq to restore, as far as possible, particularly in the region between the two rivers south of the latitude of Baghdad and in the Diyala region.

The maximum development of the canal system was during the Abbasid period, but the earliest historical records show that the kings of Sumer and Akkad were already concerned with the water-supply of their cities and fields. Numerous documents of Hammurabi (p. 210) refer to the clearing and repair of canals, and those of his subject kings often name the cities to which water was brought. But the earliest canals were not co-ordinated. Sippar, Kish, Erech, and Larsa are known to have been on the Euphrates, and probably others of the ancient cities were similarly situated (figs. 9, 13). When the river changed its course a canal was dug to maintain a water-supply. As time went on, the problems of silting and scour were gradually mastered, the works grew in size and complexity, and gradually the whole network of irrigation, navigation, and defence waterways was systematized (p. 220). The earliest canal flowing from the Euphrates above Musaiyib into the Tigris above the site of later Ctesiphon was probably the defence work from Sippar to Opis, built in Neo-Babylonian times—later to become the Nahr Melcha or Malik (p. 31)—and used both for navigation and irrigation. Lower down and taking off from the Euphrates at or near Babylon there may have been an older waterway joining the two rivers. These canals

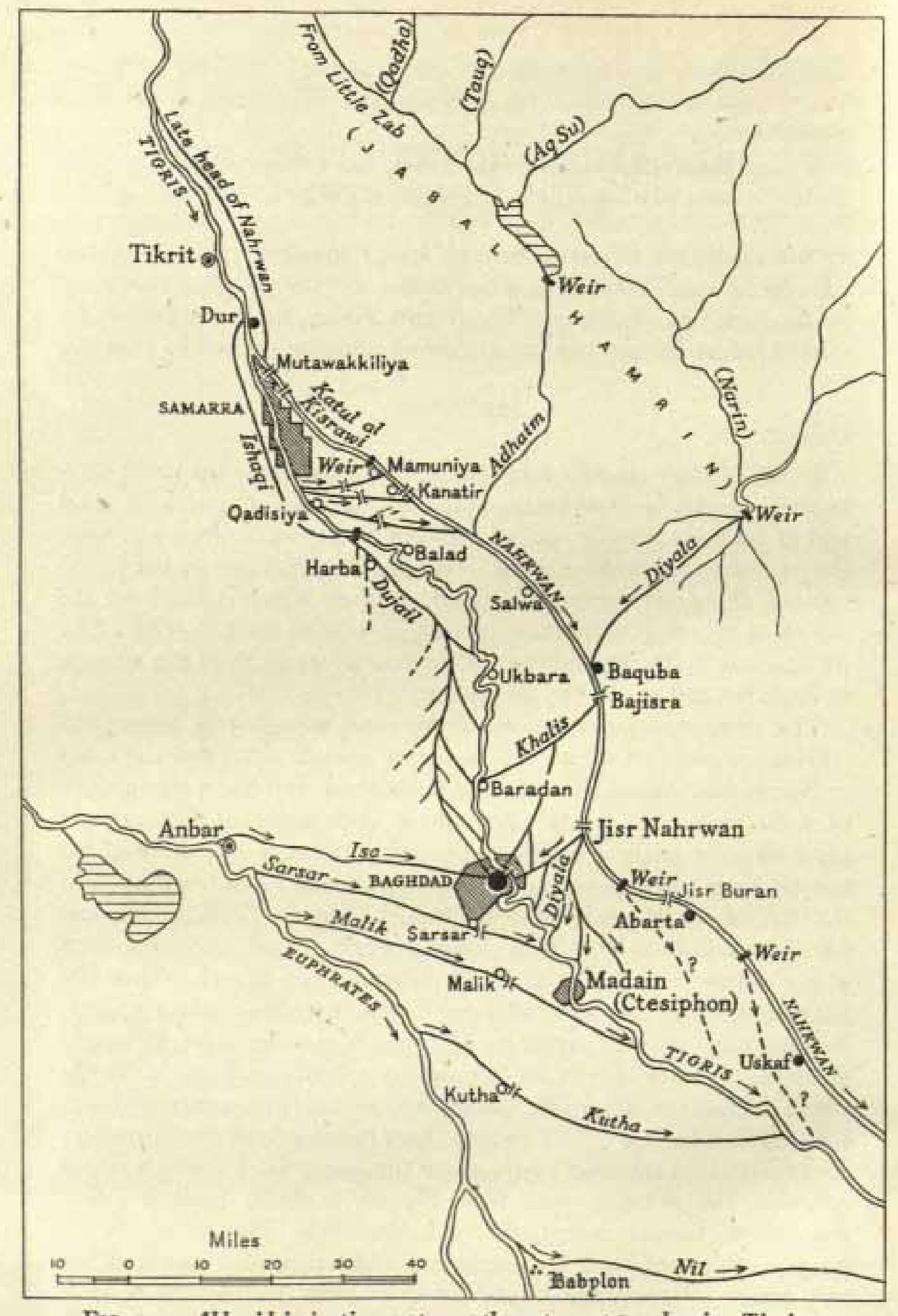


FIG. 74. *Abbasid irrigation system, 9th century A.D., showing Tigris as a drain for the Euphrates and Nahrwan Canals*

were elaborated by the Achaemenid Persians (6th to 4th centuries B.C.); canal construction from the Euphrates below Babylon was undertaken by Alexander the Great (p. 33), and it is possible that the Nahrwan system was at least begun in Seleucid times when changes in the courses of the Tigris and Diyala may have occurred (fig. 13; pp. 45–7).

The elaboration of the Nahrwan system and the development of the waterways from the Euphrates to the Tigris below Falluja by the Sassanid Persians (3rd to 7th century A.D.) and Abbasid Caliphs gave to Mesopotamia what is to-day its greatest lack—a rudimentary but sound system of land drainage which checked the formation of stagnant water and the salination of the land. The two systems of irrigation from the Nahrwan and Euphrates used the main bed of the Tigris below Ctesiphon as a drain to collect the surplus water from the land, a principle which formed the basis of these classical irrigation schemes.

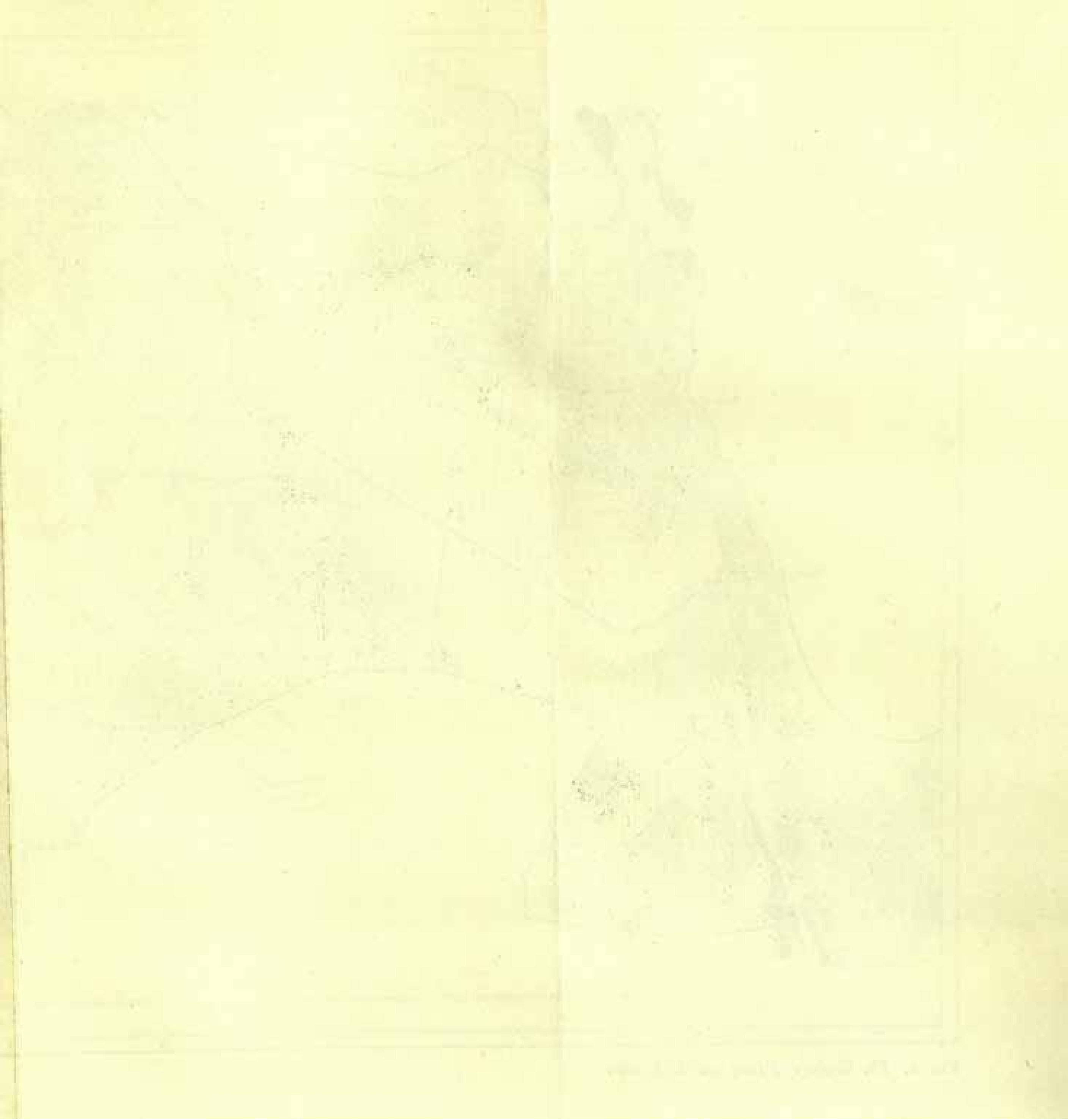
The maximum development of the canal system was due to the Abbasid Caliphs, who dug the Ishaqi–Dujail canals (fig. 74) on the right bank of the Tigris, and built new head-works to the Nahrwan. Large areas were brought under cultivation between Tikrit and Samarra, and particularly on both sides of the Abbasid course of the Tigris, by means of distributaries from the Dujail and the Nahrwan. Control works were built on the Adhaim and Diyala to prevent damage to the Nahrwan from winter spates. At the exit of the Adhaim from the Jabal Hamrin a weir was constructed which prevented excessive volumes of water in its lower reaches, and water was drawn from the Little Zab to irrigate the plain north of the Jabal Hamrin (p. 73). The Diyala was tapped for irrigation near its exit from the hills, and its surplus waters controlled at various points as they entered the Nahrwan. The districts north and east of Baghdad were intensively irrigated by these canals, and a whole series of canals from the Euphrates enriched the land between the two rivers south of the capital (p. 31).

The common view that the ruin of the land was effected in a few years by the destruction of irrigation head-works at the hands of Mongol invaders in the thirteenth or fourteenth centuries A.D. is certainly false. Some of the Euphrates canals were still in use in the early nineteenth century when Chesney sailed down the Saqlawiya—the Abbasid Nahr Isa (p. 30)—into the Tigris, but all had suffered from administrative neglect and from the gradual silting up of both main and branch canals over a period of centuries. It is relatively

easy for local cultivators to maintain some head of water in their distributaries by their own efforts and at the expense of weaker neighbours, for when it becomes uneconomical to clear the silt from the canal bed because of the increasing height of the banks, a new channel can be cut alongside. But it needs a strong central government to co-ordinate these efforts, to ensure the economic use of water, and, above all, to develop new schemes necessitated by changes in the course of the rivers which supply the water. Thus the decline of irrigation set in gradually during the last two centuries of the Abbasid period: the Nahrwan canal between the Diyala and Kut ceased to carry water in the time of the Seljuk Sultans; the upper part of the Nahrwan system was probably destroyed when the Tigris broke into it below Samarra in the thirteenth century (p. 46) just before the Mongol invasion of Hulagu Khan in 1258 (p. 254); and the Ottoman administration was never vital enough in Iraq to form a strong central authority.

The notion, which has profoundly influenced modern policy, that Iraq was continuously cultivated in Abbasid times, also needs some modification. This was true for certain areas, as for instance in the immediate neighbourhood of Baghdad, both above and below, and in all areas commanded by the great canals. But shepherd tribes had been endemic in Iraq since the Chaldean invasions of the thirteenth century B.C., and though the pastoral zones in Abbasid times were far more restricted than to-day, it is apparent from detailed Arabic accounts that they existed, particularly east of the Nahrwan, where cultivation seems to have been intensive around the numerous towns which lined the canals, but intermittent between them. It is also probable that despite the better system of drainage, land salination could not be entirely avoided, particularly in the south where the land was level, and that the tendency for cultivation to shift because of this factor existed then as now. This factor certainly operated in Sumerian and Babylonian times and, together with the change in the courses of the rivers, accounts for the remarkable number of towns which disappeared in the lower delta of the Euphrates between the Babylonian and the Parthian period.

The recovery of the land began in the nineteenth century with the cleaning of some of the Euphrates and Diyala canals, and was extended by the building of the first great modern work, the Hindiya barrage, in 1909–1913. During the War of 1914–1918 the modernization of the Euphrates canals was first undertaken. Between 1918 and 1934 there was great activity on the Euphrates canals, and many new



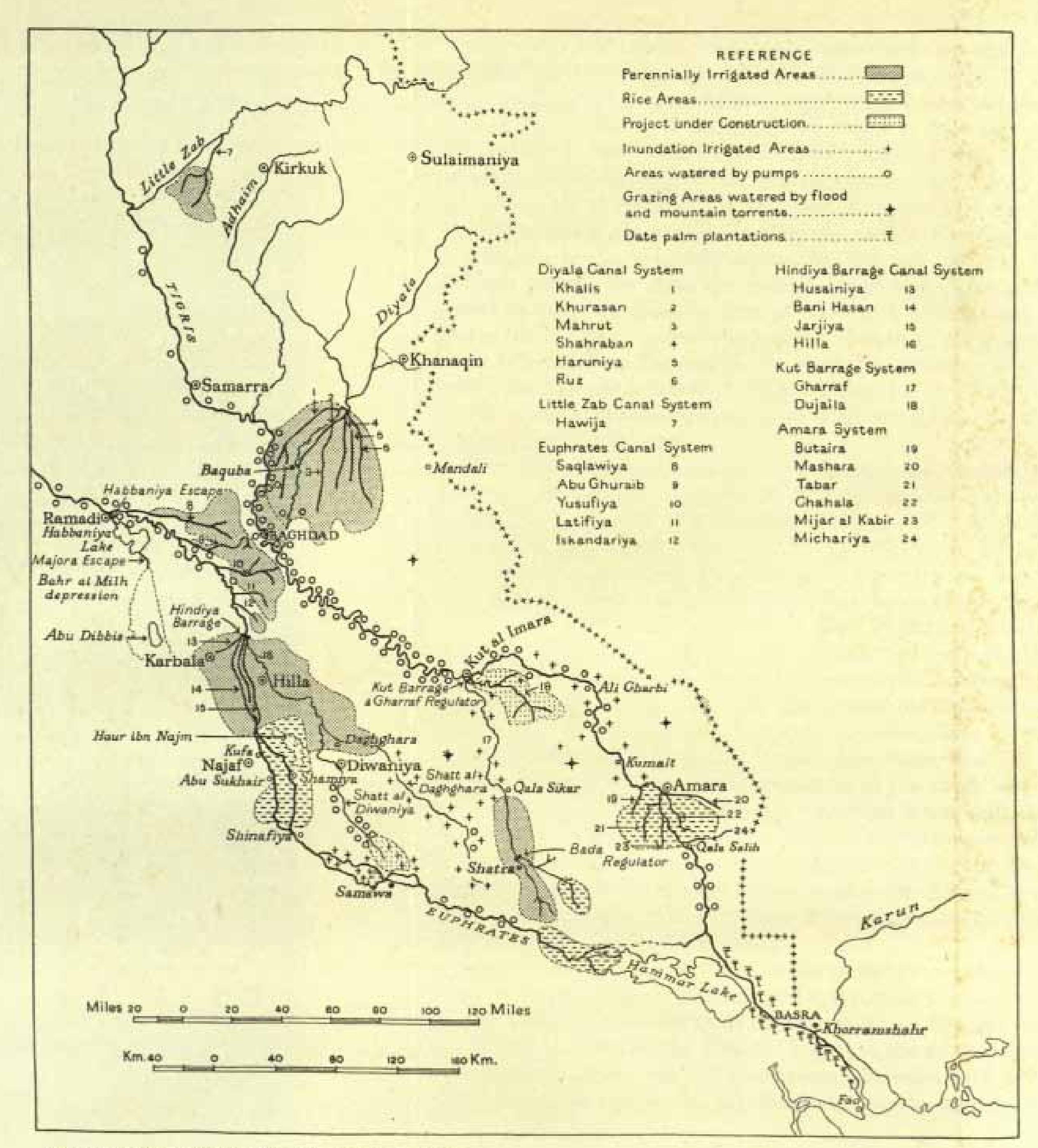


FIG. 75. *The Irrigation System of Iraq in 1940*

channels and a general system of modern works were built, of which the Abu Ghuraib is the latest (1937). By the completion of the Kut projects since 1940, water in the Shatt al Gharraf and the Shatt Dujaila has been controlled and a whole new zone has been redeemed. These works were done under the inspiration of a small but enthusiastic Irrigation Department, and their labours were supplemented by the equal enthusiasm of the Department of Agriculture, which introduced new methods and new crops.

In the areas watered by the Euphrates there are two principal differences from the ancient system. The first is that, because of the rise in level of the Tigris bed and the use of Tigris water for riverain cultivation, the Tigris can no longer act as a drainage channel for the whole area between the two rivers south of Baghdad, where now salination is a perpetual problem and where surplus waters form extensive marshes. The second difference is that below Musaiyib, where there is now a dual system for the distribution of the Euphrates waters in the Hindiya and Hilla channels, there was in the nine centuries before the Moslem conquest a great channel, the Pallacopas, which took off from its right bank the surplus waters of the Euphrates some distance below Babylon and greatly mitigated the extension of the marshes of the lower Euphrates. This system collapsed at the end of the Sassanid period when the Great Swamp was formed south of Kufa and Wasit (p. 31). The credit for the gradual recovery of the lower delta lands of the Euphrates belongs largely to nature (p. 50), but also to the unremitting but uncoordinated labours of generations of rice cultivators during the post-Abbasid period.

There are still two great canal systems of the Tigris—the Ishaqi and Dujail on the right bank, the Nahrwan on the left—which remain derelict, and neither can be restored in its original form because of changes in the river courses. The waters of the Diyala are used for irrigation of a broad belt along its course in the plain north of Baghdad, and it is possible that even greater use could be made of it in the area covered by the lower Nahrwan.

Modern Irrigation

The following summary account, based on inadequate material, should be supplemented by an account of irrigation in Iraq shortly to be published by the Irrigation Department (1944).

South of the Jabal Hamrin almost all cultivation depends upon some form of irrigation: either by distributing water from rivers and canals by direct flow on to the land through a network of small

channels and cuts, or by lifting water by various methods from rivers and canals into the channels and cuts, or by direct area inundation.[1] The first two systems serve large areas, although the second is limited to lands relatively close to rivers and canals; and the third is only useful for rice cultivation (p. 456). The relative importance of the three methods is shown by the estimate that in 1942 out of the total area then cropped by irrigation 1,700,000 acres were irrigated by lift, 1,500,000 by canals, and 250,000 by direct inundation. Canals are of two kinds, either controlled or uncontrolled; a controlled canal receives its water through a regulator at its mouth on the main river and provides water at all seasons. An uncontrolled canal receives water directly the river rises above the level of the canal-head and is usually full in flood season and empty in low-water season, which in Iraq is generally the very time when it is most wanted (figs. 3, 4). The principal complication in Iraq is the fact that the rivers are high at the wrong time of year for most crops, except rice, and thus cannot be used generally for cultivation by direct inundation. Hence their water-level must be raised in order to be available at the necessary times. This is the function of the major works on the rivers: the Hindiya barrage on the Euphrates, the Kut barrage on the Tigris, and the weir on the Diyala. These serve to hold up enough water primarily to feed the controlled canals after the flood season, and also to ensure a greater flow for the uncontrolled canals. The flood-waters themselves are a danger to growing crops, and have to be retained in the river-beds by great bunds along their courses. If the level rises dangerously, the bunds may have to be breached and the waters dispersed in areas where least harm is done.

Controlled Canal Zones of Southern Iraq

There are five areas dependent upon large canals controlled by barrages and sluice gates at the canal-heads.

(1) The five left-bank Euphrates canals running generally eastwards from the Euphrates between Ramadi and Musaiyib. The canals are perennial, and irrigation is by free flow; they benefit to a certain extent by the existence of the Hindiya barrage, but are not directly dependent on it. The principal works on these canals are the regulators at their heads; the number of regulating culverts for the control of the distributing channels is being constantly increased. The canals are outlined on pp. 30, 32 and shown in figs. 6, 7, 13; details for 1936–1937 are summarized in the table below.

[1] The areas so irrigated are shown on figs. 16, 18, 19, 20, and 21.



161, 162. *Closing the Euphrates with a brushwood dam during the construction of the Hindiya barrage, November 1913*

163. *The Hilla Canal headworks under construction, 1913*

164. *The Hindiya Barrage*

Canal	*Discharge (Cumecs)*	*Width at head (Feet)*	*Length (Miles)*	*Area irrigated in winter (Acres)*
Saqlawiya	10	33	31	50–65,000
Abu Ghuraib	15	..	..	164,000
Yusufiya and Shaishubar	15	69	34	80,000–132,000
Latifiya	3	33	28	20,000
Iskandariya	4	29	6	20,000

The Shaishubar canal is an important branch of the Yusufiya which replaces the old Mahmudiya canal, irrigating some 20,000 acres.

(2) The Euphrates canals directly dependent on the Hindiya barrage: the Husainiya, Bani Hasan, Jarjiya canals and the Hilla system (fig. 8, p. 34). The principal works are the regulators at their heads, and the Daghghara barrage on the Hilla canal which controls the supply of the Daghghara and Diwaniya branches. Regulating culverts for the distributaries are numerous. Details for 1936–1937 are summarized in the table below.

Canal	*Discharge (Cumecs)*	*Width at head (Feet)*	*Length (Miles)*	*Area irrigated in winter (Acres)*
Hilla	130	213	143	657,000
Jarjiya	15	82	40	70,000
Bani Hasan	25	82	28	127,000
Husainiya	14	59	28	70,000
			239	924,000

(3) The Diyala canals, Khalis, Khurasan, Mahrut, Shahraban, Haruniya, and Ruz (fig. 19, p. 69). Their water is maintained in the summer by the Diyala weir, which diverts the whole of the low-water discharge of the Diyala into them. Principal works are the regulators at their heads; there are numerous regulating culverts for the distributaries. Details for 1936–1937 are summarized below.

Canal	*Discharge (Cumecs)*	*Width at head (Feet)*	*Length (Miles)*	*Area irrigated in winter (Acres)*
Khalis	18	39	59	93,000
Khurasan	14	33	31	71,000
Mahrut	13	33	28	66,000
Shahraban	3	20	25	15,000
Haruniya	5	23	25	25,000
Ruz	11	26	40	56,000
			208	326,000

(4) The as yet undeveloped zones of the Shatt al Gharraf and the Shatt Dujaila are controlled by the Kut barrage and regulators at the head of the two shatts.

Other works are the regulators of the Bada and Shatra channels of the Gharraf near Shatra, which restored winter irrigation on the tail of the Gharraf before the Kut barrage was built. The Kut barrage enables water to be supplied to the whole Gharraf regularly in winter, which hitherto depended on the uncontrolled vagaries of the Tigris. The area under cultivation has not yet greatly increased but has been given a stable water-supply. In summer the Tigris supply is needed for the Amara region and is not available for the Gharraf. The maximum irrigable area is estimated at 750,000 acres (1943).

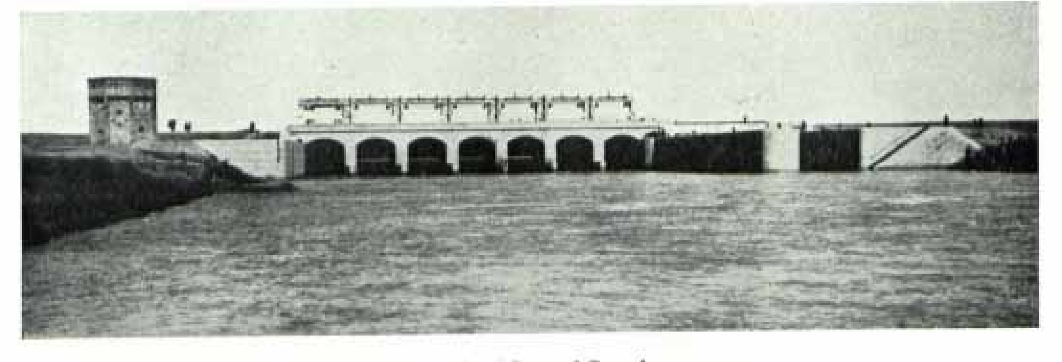
The Dujaila canal is the most recent project of the Irrigation Department. When completed it should bring 230,000 acres under cultivation, 150,000 by flow and 80,000 by lift irrigation. The first section was expected to be ready for the winter season of 1944. No other details are yet available.

(5) The canals and spillways from about Amara to Qala Salih: the Mashara, Chahala, and Michariya on the left bank of the Tigris, the Butaira and the Tabar and Mijar al Kabir on the right bank (p. 52; fig. 10, opp. p. 39). All these except apparently the Mashara are controlled by regulators.

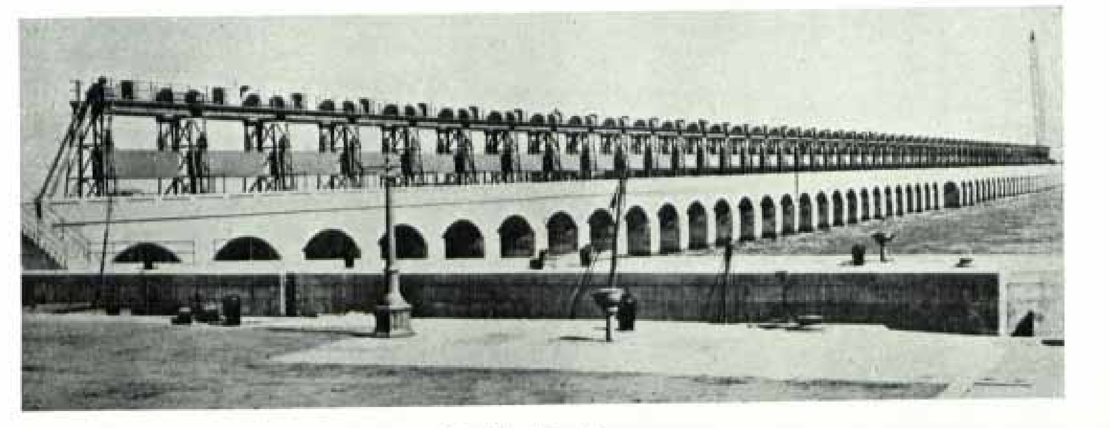
Barrages and Weirs

The three great works on which the controlled system depends are the Hindiya barrage, the Kut barrage, and the Diyala weir.

The Hindiya Barrage, which dams the Euphrates 6 miles below Musaiyib, was originally built by Willcocks in 1908–1913 and was reconstructed in 1921–1922 (photos. 161–164). It is 787 feet long and has 36 spans, each 16·5 feet wide, fitted with Stoney patent gates, and there is a lock on the east side (26 ft. × 180 ft.). Its principal function was originally to divert water down the Hilla channel which was running dry (p. 35), but by its sluice gates and the regulators at the heads of the Hilla and adjacent canals it now controls water down the Euphrates and the four canals, besides assisting the left-bank canals farther upstream by maintaining a higher level in the river. The completion of the Habbaniya scheme—by the proposed Dhiban cut (p. 29)—originally planned as a supplement to the barrage, would enable a great quantity of water to be held in reserve in the Habbaniya lake after the winter floods and released later in the summer season. But it would first be necessary to clean the lake of an immense quantity of saline deposits which have accumulated through centuries and render the water at present useless for irrigation. So far the Habbaniya lake is simply used as a means of flood control.



165. *The Gharraf Regulator*



166. *The Kut Barrage*

167. *The Mahrut Canal about 2 miles west of Shahraban (Muqdadiya)*

168. *The Haruniya Canal 5 miles north-east of Shahraban*

Estimated capacity of the lake is 255·3 milliard gallons, enough for the annual cultivation of over 900,000 acres.

The Kut Barrage across the Tigris at Kut al Imara was commenced in 1934 and completed, with the complementary regulators, in 1943 (photos. 165, 166). The length of the barrage, of which exact details are not yet available, is about 2,000 feet, with 56 openings each about 20 feet wide, controlled by sluice gates, and its height is about 50 feet from base to the top surface, which is crossed by a road.

The Diyala Weir was built in 1927–1928 to replace a temporary dam of earth and brushwood which used to be built afresh each year and collapsed under the winter floods when it was most needed. It is of the 'standing wave' type and enables the six Diyala canals to be fed throughout the year. It was originally intended (in 1923) to supplement the weir by a barrage higher upstream at the point where the Diyala enters the Jabal Hamrin, 9,200 feet long and 100 feet high, thus creating a reservoir lake with a storage capacity of 3,940 milliards of gallons. This great work would have enabled the cultivation of 1,500,000 acres in the region from the Adhaim southward to Kut.

Uncontrolled Canal Irrigation and Inundation

There are four main zones of uncontrolled canal irrigation depending largely on the use of small channels drawing water directly from the main rivers. These are:

(1) The Shamiya district between Kifl and Shinafiya through which run the two branches of the Hindiya channel of the Euphrates (fig. 8, p. 34). The principal difficulty of irrigation in this rice-growing area is that the land is generally built up by the silt above flood-levels, and also that the flowing water in the cuts eats away the alluvial soil upstream, thus creating steps or falls in the channels (p. 36) which likewise lower the water-levels and prevent inundation.

(2) The lower Euphrates around Samawa and from Nasiriya eastwards to the Hammar lake (figs. 9, 10). Direct use is also made, in this area, of the spring floods for rice cultivation. This region suffered greatly by the dredging of the Haffar channel during the War of 1914–1918, which scoured the Euphrates channel upstream and thus lowered the water-level below that of the canals (p. 39). In 1927 this was remedied by closing the Haffar channel with an earthen dam, thereby forcing the whole of the water into the old off-takes. The combined acreage of areas (1) and (2) is about 200,000 acres.

(3) The lower Tigris below Kut al Imara, apart from the Amara

controlled canal system described above, is similarly tapped by numerous small channels.

(4) The creek system of the Shatt al Arab. Here a fresh method of irrigation exists. Tidal action twice daily drives fresh water into the large number of cuts and creeks leading off the channel, which form a dense network of waterways often only 12 yards from one another. Problems of silting arise, and the creeks are cleaned either by dredging machine or by hand labour, and non-return gates are sometimes installed. Tidal action extends over 100 miles upstream and affects about 112,000 acres through 70 major creeks.

Irrigation by Lift

The use of water-lifting machinery, either oil pumps or primitive apparatus, may be found along any river, canal, or creek; but there are two regions where it is of special importance: (1) along the Tigris from Mosul downstream to Kut, and (2) along the Euphrates from the Syrian frontier downstream to Musaiyib. There was a remarkable increase between 1918 and 1930 in the number of oil pumps installed, particularly along the Tigris above and below Baghdad. A considerable expansion of riverain cultivation took place, mainly on the lands of shepherd tribes, and both townsmen and tribal shaikhs invested much money in pumps. A law of 1926 stimulated this increase by the remission of taxation for four consecutive seasons to farmers using pressure pumps, as did the cheapness of fuel oil. But the lack of technical knowledge and of mechanical ability caused many setbacks, and the fall of agricultural prices in 1930 ruined many pump owners. The fellahin sub-tenants of the pump owners also proved unwilling to grow the more remunerative industrial crops which would enable the pump owner to make large profits. By 1934 the number of oil pumps had recovered from the crisis and continued to increase. In 1937 out of 2,467 pumps (Table IV, p. 477) over half were along the Tigris in Baghdad and Kut provinces, and one-quarter on the main river and canals of the middle and upper Euphrates. A fair number are also employed on the creeks of the Shatt al Arab. The average power of the pumps was then 30 h.p., but they range from about 10 h.p., a type common on the Shatt al Arab, to 65 h.p. on the upper Tigris in Mosul province, where a powerful type is necessary because the height of lift is much greater. The lift varies from 6 feet on the lower Tigris to 40 feet at Baghdad, and is proportionately more farther north.

Apart from oil-driven pumps several traditional types of bucket

machines and water-wheels are in common use. These machines are slow, but the water raised by them is more carefully used and the land watered with it is better tilled. The simplest is the water-hoist (*dalia, shaduf*)[1] consisting of a rope and bucket tied to a counter-

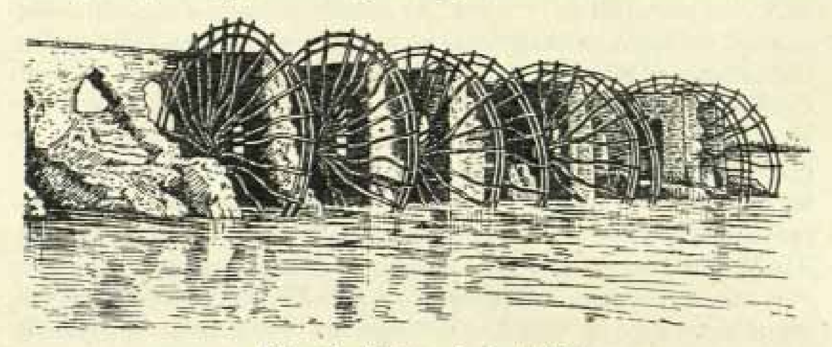


FIG. 76. *Water-wheels at Hit*

weighted lever which works across a horizontal supporting bar; the lift is about 6 feet. The *sakia*, *qalib*, or *sharrad* is a water-hoist worked by an animal which pulls the bucket up by a rope running over a pulley (photo. 169). These are used often in pairs along the Euphrates between Ramadi and Musaiyib, and singly on the Tigris between Samarra and Kut. On the upper Euphrates and also on the Tigris near Mosul big water-wheels or *norias* are used (fig. 76) which work by the force of the current. They are set on stone piers built out into the river, and the many pots which are fitted to the rim of the wheel empty into an elevated conduit set on the top of the pier. The most complicated is the Persian water-wheel, also called *sakia*, mostly used on the middle Euphrates. An animal, usually blindfolded, pulls round a big wooden horizontal cog-wheel geared to a vertical wheel which turns a bucket-carrying wheel set on the same axle in the water; a trough carries the water off to the irrigation ditch. They may lift up to 20 feet.

Land irrigated by lift is reckoned to be more valuable and is now more extensive (1944) than land irrigated by flow.

Northern Iraq

There are no large canals and no great irrigation works in the north except for the recently constructed canal from the lower Little Zab

[1] The following terms are sometimes confused, different names probably being used in different areas. *Dalia* can be used for any bucket-hoisting apparatus, even wheels. *Sakia* is generally confined to the cogged-wheel apparatus.

to water 125,000 acres in the Hawija district of the Kirkuk plain; but considerable use is made, as has been already indicated, of lifting machinery along the rivers, and in the mountain valleys of Kurdistan considerable ingenuity is displayed in devising small systems of irrigation cuts and ditches to water the maximum area of the restricted amount of cultivable land, particularly for the small-scale cultivation of tobacco and rice (pp. 456, 460). One device, the *karez*, used principally in the Erbil and Kirkuk plains, calls for comment. The karez consists of a series of wells sunk at gradually decreasing depths on gently sloping ground and interconnected by underground channels, so that the subsoil water of a relatively large area is collected in the last and shallowest well, from which it is hoisted up for irrigation. The karez has the special advantage of preventing losses from evaporation. Certain families retain the traditional knowledge of the art of karez digging, which is a dangerous occupation. In Abbasid times there were said to be some 365 karezes in the Erbil plain, and as many as 60 were still in use recently.

Land Tenure

The progress of agriculture in Iraq has for long been greatly retarded by the obscure and confused condition of all forms of land rights. Where security of ownership, possession, and tenure is inadequate, neither tenant nor landlord will exploit their resources and abilities to increase the yield or extend the area of cultivated land. Hence the stabilization of land rights is a prime interest of the Government. It was first attempted in 1868–1869 by Midhat Pasha, who introduced into Iraq legislation enacted ten years before at Istanbul.

At that time the vast bulk of land in Iraq was in no regular form of private ownership or possession, and there was no means of registering such titles and documents as existed. The Ottoman legislation created a new legal form, *Tapu*, for the possession of state lands (*Miri*) and encouraged applications for Tapu titles, and at the same time established a Land Registry for documents. Titles were issued for considerable areas, but unfortunately the scheme was not based on a cadastral survey of any sort, so that the descriptions of boundaries in the new titles were extremely ambiguous. The Land Registry was not properly maintained and soon ceased to correspond with the facts. The destruction and removal of the registers during the War of 1914–1918 increased confusion. Hence by 1918 the Tapu lands

were in as uncertain a condition as the rest of the territory which had not been touched by the Tapu system. Much piecemeal reform was carried through in the Mandatory period by the restoration of the registers and the commencement of a regular survey, and in 1929 Sir E. Dowson, a former official of the Egyptian Government, was invited to study the situation in Iraq and make proposals for the reform of land tenure. Between 1932 and 1934 legislation was passed to implement most of his proposals, and the present system of land tenure in Iraq is based mainly on the Law for the Assessment of Land Rights (1932) and the Law of Luzma (1932), which have improved and codified native systems. These have been made effective by a cadastral survey and a series of Settlement Commissions which by 1943 had covered the central part of the country. The Land Register, kept by the Tapu Department, now contains the records of all land transactions which have been verified by the Commissions, and of all new transactions, which must be based on a survey and map.

Ownership

The forms of land ownership are Mulk, Miri or Amiri, Matrukhi, and Waqf. *Mulk* is land owned in full property by private persons or institutions. There is very little Mulk land in Iraq except for the sites of buildings within towns and villages. *Miri* is land of which the ultimate ownership belongs to the State. Practically all agricultural land is held by one of the three varieties of *Miri* tenure: *Tapu*, *Luzma*, and 'simple' *Miri*.

Tapu tenure, or 'land commissioned as fief', gives all the rights of full property, such as disposal, mortgage, and inheritance, except that the nominal 'possession of its substance' is reserved by the State and that Tapu land cannot be transformed into Waqf land without the permission of the Government. Tapu lands originated in the land reforms of 1868 by which large areas of Miri were first sold to private individuals in this form. About one-fifth of the cultivable area of Iraq was thus disposed of, and it is still the general policy of Iraqi governments to encourage the extension of Tapu land on terms favourable to the buyers.

Luzma rights, which are a combination of tenancy and possession resembling a perpetual leasehold, originated in the tribal occupation of simple Miri lands, and are confirmed where such occupation has been effectively exercised for a certain period, usually 15 years. They are also granted in special riverain areas to persons who erect

pressure-pumps for irrigation, provided that there is no better claim from a tribesman. Luzma gives the right of 'dwelling and agriculture'. Any crop or tree may be grown and any normal farm buildings may be erected. The holder of Luzma lands pays a percentage of his annual produce as rent to the State in addition to the normal taxes. Luzma rights are inheritable and transferable by testament, may be ceded to another person (by a form of sale or gift), and may be mortgaged, but such transactions must be registered with the State, which retains some control over them. The rights of Luzma lapse if the land is not properly cultivated for 4 successive years, but otherwise the length of possession is unlimited, and Luzma land that has been planted with fruit trees can after 10 years be transformed into Tapu land free of charge. The percentage of Luzma lands in the provinces assessed by 1943 varied considerably, but totalled 22 per cent. of the total area of 12 million acres.

Simple Miri land, in which neither Tapu nor Luzma rights have yet been created, is still the largest category, forming 55 per cent. in 1943 of the land assessed. Both the nominal ownership and all effective rights of disposal of simple Miri are retained by the State, which leases it to individuals by normal forms for a limited period. Simple Miri also includes what used to be called *mawat*, 'dead' or waste land, which was useful neither for agriculture nor building.

Matrukhi covers land used for all purposes of public utility, such as communications, waterways, irrigation works, communal threshing-grounds, docks, cemeteries, parks, sites of hospitals, schools and other government buildings, and also of historical monuments. There is a special registry for such land, and the State has the power under a law of 1934 to acquire land in all other categories for such purposes, against due compensation.

Waqf land is a special category consisting of lands made over by their holders for any of the purposes of Waqf described on p. 402. Waqf land may be either 'regular' or 'irregular'. *Regular Waqf* is land which was originally Mulk. *Irregular Waqf* is land which was originally Miri. Only Mulk and Tapu land can now be turned into Waqf, though former Sultans dedicated some Miri lands as Waqf. It is also possible to make a Waqf of the income alone or of a proportion of the income derived from land. This too is an irregular Waqf. Waqfs established for charity are administered directly by the Department of Waqf (p. 403), and such land is either leased to private persons or exploited directly by the department. Such lands when not widely scattered can be worked in large economic units. But



169. *A pair of animal water-hoists or sharrads*

170. *Ploughing a palm-grove*



171. *A threshing machine or jarjar*



172. *Kurdish peasant ploughing the Assyrian plains*

family Waqfs established for the benefit of particular persons are administered by private trustees, and the continual increase in the number of the beneficiaries and the decrease in the value of their shares lead to the neglect of the land. In 1943 Waqf lands totalled about 1·4 per cent. of the lands then assessed.

Farmers and Tenants

The conditions of land tenure affect only indirectly the vast majority of the peasant population, because there is very little peasant proprietorship in Iraq despite the fact that the unit of landed property, i.e. the estate, tends to be very small. Land is generally owned as an investment by wealthy townsmen or by tribal shaikhs and aghas, and so is worked on a peculiar system of share-cropping by the *fellahin*. Thus there are very few farm labourers paid in cash wages and organized in groups, but each fellah cultivates a separate plot of land for the landowner in return for a share in the produce. Yet in some respects the fellah is closer to a labourer than to a smallholder because he is not responsible for the general organization of his duties. This is divided between the landowner and the *sarkal* or agent, whom the landowner employs for the supervision of the fellahin in return for a share in the produce. The customs which regulate the division of duties between landowner, sarkal, and fellah have been codified in the 'Law on the Rights and Duties of Farmers' of 1933. The landowner or occupier (in the case of Luzma or simple Miri) determines the amount of seed to be sown and the distribution and rotation of crops, the times and methods of cultivation and of harvesting, the planning of the irrigation channels, and the times and methods of irrigation. It is the duty of the sarkal to see that the general arrangements thus made by the landowner are carried out by the fellahin: he not only supervises but directs them to specific jobs. His contract is for the period of the agricultural year and until the harvest has been gathered in. The fellah's part is to sow, cultivate, and harvest the crops and to carry out the orders given by the sarkal. His contract is also for the agricultural year from sowing to harvest, and his reward is a share of the crops.

The system is more complex than in adjacent Arab countries, where the fellah is usually both labourer and farmer. The main reason is that the methods of irrigation necessitate central organization in the management even of the smallest distributary channels which water the separate plots. The system is elastic and the landowner may in practice leave more or less of the direction to the sarkal.

Ideally the landowner corresponds to the farmer in English parlance and the sarkal to the hind or bailiff, except that neither is expected by Arab convention to work physically on his land. That is the duty of the share-cropping fellah. The weakness of the system is that, though the fellah has a smallholder's interest in the actual land, he has no security of tenure beyond a single season and no incentive to improve the land, and hence tends to be satisfied with a subsistence level of existence. This insecurity of tenure is mitigated when the landlord is a tribal shaikh, because his tenants are his fellow tribesmen and custom forbids him to terminate the tenancy of a tribesman except for obvious neglect of a tenant's duties. The advantage of the system is that, in a land liable to natural catastrophes, the fellah's taxes and rent (the landowner's share) are proportionate to his losses in a bad year as well as to his gains in a good year, so that he should escape the burden of arrears and may receive capital assistance from his landlord. Where lands have been divided directly among tribesmen they have tended to surrender them to their shaikhs for this very reason.

The produce of the land is divided between four parties: the landowner, the sarkal, the fellah, and the Government. Only the Government's share is fixed by law and consists of a water rate levied on lands irrigated by flow, a State rent on Luzma and simple Miri lands, and a tax levied on the produce of all forms of land and paid in cash. The water tax is levied on lands irrigated by flow and varies from 5 to 10 per cent. State rents on Luzma or simple Miri lands vary from 1 to 5 per cent. according to the character of the land, its irrigation facilities, and the proximity of markets; before 1936 they were sometimes as high as 10 per cent. The tax on produce was fixed at 10 per cent. until 1932, but the methods of assessment varied amazingly; then it was replaced by a similar tax on the sale and export of produce, excluding what was consumed at home or used for seed (p. 484). The total government share in produce thus varies from under 10 per cent. (sales tax only) on lands in private possession (Mulk or Tapu) to between 11 and 25 per cent. on leasehold and rented lands; before 1936 the latter figure rose as high as 30 per cent. for the best irrigated land.

After the government dues have been set aside the remainder of the produce is divided between fellah, sarkal, and landowner. The proportion received by each varies according to the quality and also the legal category of the land, and according to the contribution towards expenses made by the three parties. The fellah usually receives not less than a third and not more than a half of the total

produce. The landowner generally receives between 30 and 40 per cent., but may receive as little as one-sixth if he does not pay for the seed, or one-tenth in tribal areas if the land, though registered in the name of the shaikh, is generally regarded as the property of the tribesmen. It would seem to be more common for the sarkal to be paid out of the landowner's share than out of the fellah's share or out of both. Generally the landowner pays half of his own share to the sarkal, who seldom receives more than one-fifth. A characteristic reckoning for lands watered by rain is that the Government receives 20 per cent., the landowner 20 per cent., the sarkal 10 per cent., and the fellah 50 per cent. The reductions made by the Government in its various charges generally seem to be appropriated by the landowner and sarkal at the expense of the fellah. Thus the change from a tithe on gross produce to a tax on sales works unfairly for the fellah in that his traditional share, formerly tax free, has not been increased, whereas he now pays tax on that part of it which he sells.

Aqr. The 'rights of Aqr' may be mentioned here, because though they are a form of property-right in land they are in effect a charge upon the land. They are held by former owners or holders of land who were dispossessed of their property for neglect of cultivation before 1870, but allowed to retain a share of its produce in perpetuity, usually between 2 and 5 per cent. of the gross returns. Landholders now have the power to acquire Aqr rights from their owners at fixed rates and thus extinguish the charge, which proves burdensome when such lands are brought under intensive cultivation.

Agriculture

General Conditions

Despite the existence of large oilfields, the bulk of the national wealth and the livelihood of nearly every individual Iraqi is derived directly or indirectly from agriculture, stock raising, and the ownership of land. Yet the cultivated area is not large, only about one-fifth of the 175,000 square miles of Iraq are reckoned cultivable, and of this only a small proportion is cropped in any one year for economic and technical reasons. Formerly this proportion was reckoned between one-fifth and one-tenth, but since about 1935 between 5 and 6 million acres are cropped annually out of 22,000,000 acres. There are two major divisions of the cultivated area, each of roughly equal size: the Rainfall Zone, in which crops depend upon rain for water, and the Irrigation Zone in which they depend upon water

drawn by flood or by lifting apparatus from rivers and canals.[1] The Rainfall Zone corresponds roughly to upper Mesopotamia and Kurdistan, the Irrigation Zone to lower Mesopotamia, though rain-fed cultivation extends southward in good seasons into the northern fringe of the Irrigation Zone; likewise in the Rainfall Zone there is local irrigation by lift or flood along some rivers. There is a general division of winter and summer crops. Winter crops (*saifi*) are sown in the autumn and fed by the winter rains or by light irrigation in the Irrigation Zone, and harvested in spring. Summer crops (*shitwi*) are sown in spring in the Irrigation Zone and near the watercourses of the Rainfall Zone, fed by lift or canal or flood irrigation and harvested in summer or autumn. The principal crops, considered in detail below, are barley, wheat, dates, and rice, and in special areas cotton and tobacco (Table II, p. 476). Subsidiary crops include millet, sesame, lentils and beans. In certain areas fresh vegetables and varied fruits including grapes are grown. One of the principal needs of Iraq is the establishment of profitable alternative winter crops to replace cereals, which tend to be over produced. The two most valuable exports are cereals and dates, but the former is at the mercy of world markets, while the latter is far less variable.

The general aspect of the country shows that in the Assyrian plains, the main granary of Iraq, winter cereals—barley and wheat—predominate, and summer crops like millet, maize, and sesame are grown only where local irrigation is possible from watercourses. In central Iraq—the Falluja–Baghdad–Diyala canal zone—cereals such as wheat and barley predominate as winter crops, while summer crops include cotton and the just-mentioned subsidiary crops and market-gardening in the neighbourhood of Baghdad. From this zone southward to the Hammar lake barley and rice are the predominant crops, while date palms become more numerous southward to the Shatt al Arab, where all the riverain lands are covered with palm-groves. In the mountains of Kurdistan the crops are far more varied than elsewhere and cultivation is generally on a small scale, but the most valuable products are tobacco and grapes (photo. 173).

Nearly everywhere cultivation is in the hands of a peculiar class of share-cropping small-holders who have no security of tenure and whose labours are supervised in the interest of the landowners by a set of agents known as *sarkal* (p. 445). Agriculture remains primitive

[1] The usually accepted figures, dating back to 1930, are 10 million acres in the Rainfall Zone, 12 millions in the Irrigation Zone. Recently the latter has been assessed at 20 millions, but water could hardly be provided for such an area.

in its tools and backward in its technique, partly because of the ignorance and illiteracy of the fellahin, but more because of the lack of incentive for the individual cultivator to improve his land under this system whereby the landlord secures the advantage of all improvements. This general backwardness is illustrated by the low rates of yield generally obtained. The following comparisons with Turkey and U.S.A. are of interest; comparison with west European countries such as England and Holland is even more unfavourable, but less to the point.

Average yields in lb. per acre for 1934–1935

	Wheat	*Barley*	*Rice*	*Tobacco*
Iraq . .	291	515	963	672
Turkey . .	694	816	2407	615
U.S.A. . .	687	985	2038	873

The establishment of large farms, worked directly by their owners with modern machinery, is generally prevented by the almost total lack of a class of farm labourers working for cash wages. The expansion of the cultivated area, particularly in southern Iraq, is greatly hindered by the general lack of population. Hence increase of yields per acre is particularly desirable as a means of enriching the fellahin. Labour is specially short at harvest time, which is prolonged by the primitive methods in use, and a lengthy harvest may interfere with or even prevent autumn tillage and sowings. Basically water is more valuable than land in the Irrigation Zone, and at present the improvement of irrigation in a particular area generally causes a shift of population; the less well-watered land simply goes out of cultivation. This tendency is greatly helped by the unstable character of the rural population, a great part of whom have only settled down as cultivators within the last century and have no lengthy attachment to their own locality.

Soils

A general account of soils has already been given (p. 182). The Department of Agriculture has been conducting analysis of the soils of Iraq for a long period, but the material is not yet available for the formation of a soil map. This work is most important in the alluvial plains of southern Iraq, where there is a problem of soil salination. In these soils fine gravel is generally absent, coarse sands and clay content are low. Fine sand, coarse and fine silts are the principal constituents, and the soils are classified accordingly as silty or sandy

loams. The stronger loams, which bake hard after drying, are the most frequent. Some very sandy soils occur, consisting of coarse and fine sands with very little silt; these are useless except for the production of scanty pasturage. Generally soils are very rich in calcium carbonate (up to 20%), well supplied with potash and adequately with phosphates, but are generally deficient in nitrogen. Soluble salts are always present, and accumulation of alkali takes place in soils which have been long under cultivation. This is mainly due to the rise of alkalis from the subsoil as a result of bad drainage of irrigated lands, and also to the concentration of salts in the irrigation water or the continuous evaporation of seepage water from rivers and canals. Well-drained lands and lands not long cultivated contain only a minute percentage of toxic alkali salts, of which the chief are the chlorides of calcium, magnesium, sodium, and their sulphates; sodium carbonate or 'black alkali' is rare or non-existent. Soil salination is generally worse on lands watered by flood than on those watered by lift, as flood water is used more extravagantly than lift. The use of silt-laden water simply for fertilization is a particularly common cause of salination. Experiments in soil-washing have shown that in some areas soils wash clear of alkalis readily if drainage can be provided. As much as 62·7 tons per acre of soluble salts have thus been cleansed away from experimental plots.

In the Assyrian plains of northern Iraq the soils are also of alluvial origin though of greater geological age. They are generally more friable than in the south and seldom suffer from salination even under irrigation, because there is natural drainage.

Tools and Methods

The agriculture of Iraq is primitive both in its tools and its methods. The plough, the principal and almost the sole cultivating implement, is little more than a wooden prong shod with iron and harnessed to a beast; there is no curved ploughshare, and a very narrow and shallow furrow is driven (photos. 170, 172). The plough is extremely light, and easily dismantled and transported from plot to plot, and is drawn by donkey, mule, horse, or cattle. Ground that is too broken or too intersected by watercourses is cultivated by hoe and mattock or by spade. Reaping is done by the slow and tiring hand-sickle. For threshing there are two methods: the corn may simply be trod by animals tied by a bridle to pegs in the ground, or else the threshing plough of the Middle East is used, called *hulwa* in southern Iraq and *jarjar* in the north (photo. 171). This resembles a sled with

revolving metal blades which chop the straw and is drawn by draught animals. Winnowing is done by the five-pronged winnowing fork or shovel, and the chopped straw must be cast again and again till all the chaff is blown clear by the wind. Threshing and winnowing thus

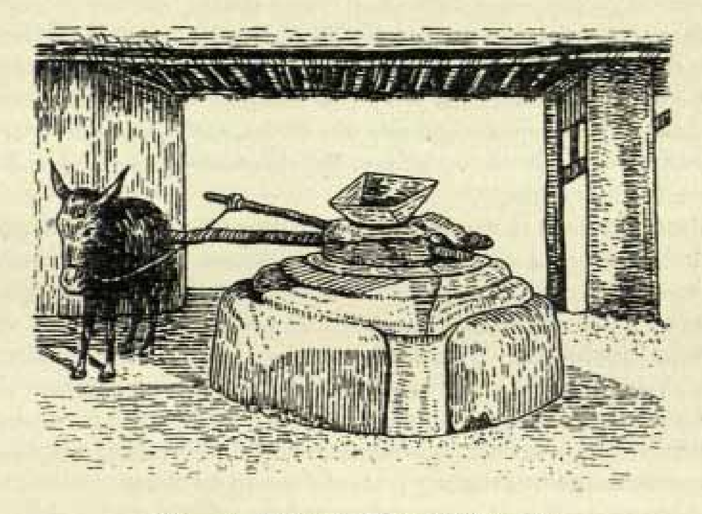


FIG. 77. *Stone mill for grinding corn*

take an immense time and often last from July to October, leaving little time for other work. Grinding the corn by stone mills is an equally slow process (fig. 77).

The use of modern machinery is hindered by several factors, notably the small-holding and share-cropping system in general, the lack of capital and credits and of skilled mechanics, and absence of hired agricultural labour. The Assyrian plains are the most suitable region for its use, and Kurdish landowners have shown some interest. Between 1925 and 1930 a fair amount of machinery (to the total value of £250,000) was imported, but in the succeeding five years the economic crisis reduced this total import by nine-tenths.

In 1942 there were only 142 tractors in all Iraq. A scheme was then planned to import machinery which should be worked and maintained under the control of the Department of Agriculture. It was estimated that Iraq could employ 2,000 tractors.

The variety of agricultural methods is shown by the experience of the Latifiya Estates Company, which holds 63,000 acres near the Latifiya canal. Some 40,000 acres are in use, half being cropped and watered by flow or by pump each year; the remainder is higher

ground and requires pump irrigation which is not yet in being. The lands are farmed partly by share-croppers and partly by paid labour using machines under the company's management. The company's machines also assist the share-croppers in ploughing and harvesting. Before 1940 cotton was a principal crop; during the war it has been replaced by barley, wheat, and root crops, mostly potatoes and onions. The share-croppers grow the barley and part of the wheat, the company manages the remainder, and obtains notably better results than the share-croppers, gaining, for instance, the very heavy yield of 13 cwt. of wheat to the acre when the share-croppers produced only 7 cwt. of barley (1942).

Machines most in demand are not cultivating tools but oil pumps for irrigation (p. 440), just as the Iraqis show ingenuity principally in the variety of the native methods of controlling and lifting water (p. 441). The Kurdish water-mill for grinding corn is also an ingenious instrument. This works as a horizontal turbine using the velocity-head of the water instead of its weight, and disposes of the necessity for gearing. The crudity of the workmanship reduces its efficiency, but operation is automatic and little attention is needed. Output is limited to about 5 cwt. of flour in 24 hours.

Cultivation is based on the fallow system. In the south, either half the land is left fallow and half tilled each year, or half is sown with a summer crop, half with a winter.[1] In the north the land may be continuously cropped for two or more years and then left fallow for the same period. True rotation of crops with the use of a green manuring crop, such as the vetch *Lathyrus sativus*, has been introduced but is not common. Camel thorn, 'shaikh plant', and other weeds are, however, commonly ploughed into the soil. Otherwise land is manured by the custom of allowing the shepherd tribes to pasture their flocks on fallow ground: the use of artificial fertilizers is practically unknown. The fallow system is necessary to prevent soil salination in the Irrigation Zone.

In northern Iraq the land is ploughed twice for winter crops in the preceding winter between January and April, the second or *ward* ploughing being a cross ploughing. The spring growth of weeds is killed by the summer heat, and between August and October furrows are ploughed and the seed sown by hand and covered by plough. Where water is available the land is watered a week before the sowing to draw out the weeds, which are killed off by the subsequent furrowing. The early rains germinate the seed, and the crucial period is in

[1] In prosperous times only one-third is usually left fallow.

March and April, when showers are required about every ten days to fill the grain. After the first winter rains, lands left unploughed the last winter are ploughed hastily and sown; but such *tarakal* crops cannot equal the *rabas* or *ward* crops from well-prepared lands.

Land Settlement and Size of Holdings

The shortage of agricultural labour is a very good reason for the delay in carrying out some of the more grandiose schemes of irrigation. With the completion of the Abu Ghuraib canal and of the schemes dependent upon the Kut barrage, probably as much water has been made available as the existing population can use. Any extension of the cultivated area depends upon the conversion of shepherd tribesmen into cultivators, and there may be limits to both the efficacy and the desirability of this. Information about the size of holdings is scanty. The economic limit fixed for small holdings of Luzma land under the law of Luzma is 20 dunams or 12·8 acres for ploughland and 5 dunams or 3·2 acres for land planted with trees. But these are minima. On a branch of the Saqlawiya canal land was divided between fellahin at an average of 14–15 acres each. On Latifiya estate each family has 20 acres of winter crop. Holdings in the Shatt al Arab palm-groves, great and small together, average 18 acres. The only statistical information available (Table V, p. 477) concerns the size not of cultivator's holdings but of landed properties, for which the average, as far as the evidence goes, is about 245 acres.

The maximum necessary expense for the settlement of new cultivators on new land is shown by the method employed for the settlement of Assyrians in northern Iraq. The cost per family in 1926–1927 was as follows:

	Rupees
Two oxen	90
One plough	15
590 lb. of seed barley	10
The same of seed wheat	25
Hire of mules for 2 days	8
Total	148

The Assyrians were supposed to be destitute; generally new cultivators in Iraq are tribesmen with sheep and cattle of their own.

Research and Education

The field work of the Department of Agriculture has suffered greatly from both the inadequacy and the irregularity of its income, so that the planning of long-term schemes has been difficult, and at

times programmes have been abandoned or severely curtailed. Normally two experimental farms are maintained, the Rustamiya farm near Baghdad, and the Bakrajo farm near Sulaimaniya. Five 'Sections' are maintained for wheat, tobacco, plant protection, gardens, and industrial research. Experimental work includes the improvement of native varieties and the introduction of new strains of existing crops, the introduction of entirely new crops, the investigation and control of pests and diseases, and the discovery of commercial uses for existing crops. The department's principal achievements have been the establishment of cotton growing, the change in methods of tobacco cultivation, the introduction of new varieties of cereals, and the organization of locust control. The education of the fellahin in new methods is often slow and difficult because of their inherent conservatism and extreme illiteracy. But the departmental farms exercise practical influence, and use is made of instructional leaflets where possible. Some of the department's research into soil and allied problems cannot be utilized at present because of the inability of the peasants to understand the simplest form of soil science: thus the use of chemical fertilizers is greatly retarded.

Direct agricultural education has had little success. An agricultural college existed precariously between 1926 and 1931, attended by few if any of the sons of landowners, for whom it was intended, and only by such townsmen as hoped thereby to secure a government post. Between 1932 and 1934 a country college existed at Hilla for the practical training of the sons of sarkals (p. 445) and fellahin. At present there is a training school at Abu Ghuraib for agricultural officers and inspectors; a school for rural teachers at Rustamiya which provides a 5 years' course for 1,000 students is about to be divided into two establishments, one at Baquba and the second at Mahawil near Babylon. It is connected with the reform advocated by the Monroe Commission on Education in 1931, which recommended the establishment of schools of a new type in the small country towns and larger villages. In these the education is mainly a practical course in cultivation, stock breeding, the manufacture and repair of implements, and the building of sheds and houses.

The Crops

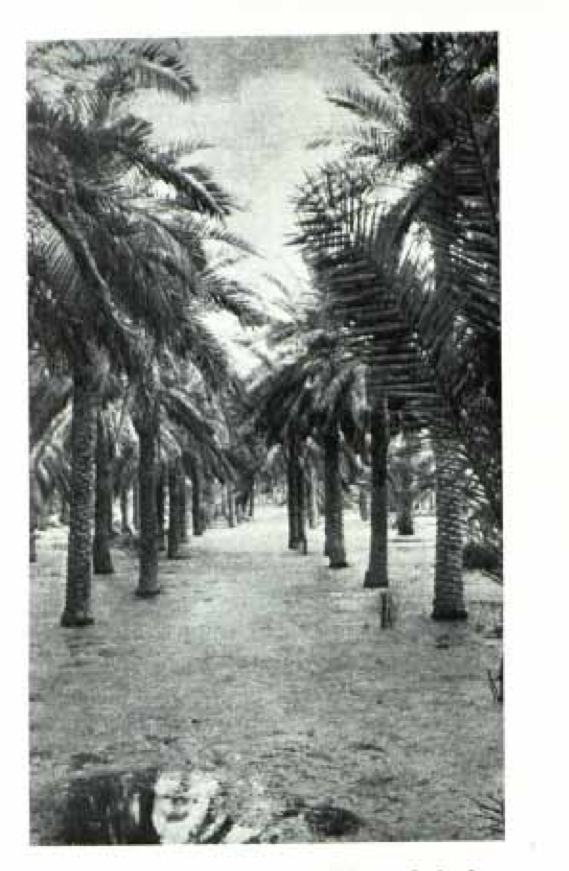
Barley

This is grown as a winter crop in most wheat-producing regions; the areas of greatest production are the Assyrian plains, which contribute nearly one-third of the total, and Kut and Muntafiq pro-



173. *Irrigated vineyards in the Kurdish mountains near the village of Atrush, about 40 miles north of Mosul. Uncut oakwoods preserved on graveyard site in background. Alt. c. 3,000 feet, July 1933*

174. *Albu Mohammed tribesmen transplanting rice in the marshes of Haur al Hawiza, south-east of Amara*



175. *A palm-grove of the Shatt al Arab*



176. *Baghdad date-palms bearing fruit*

vinces, which together contribute as much. Conditions suit barley better than wheat in the Irrigation Zone (southern Iraq), where barley is the predominant cereal, but it is also grown very extensively in the Rainfall Zone. It has a shorter growing season and demands less water than wheat, and endures a certain degree of soil salinity. The native kinds are brown and white, the white being preferable for export. The Department of Agriculture has introduced two varieties superior to the native kinds as malting barleys for export: the Moroccan, which gives a very heavy yield, and the Californian, which is also suitable for green fodder and dry fodder; moreover, the yield of about 5 cwt. an acre is nearly twice that of wheat. Hence barley competes on favourable terms with wheat both as an export crop and for home consumption and is generally more popular with farmers. Before 1930 barley acreage reached a maximum of 2,340,000 acres as against about 1,800,000 under wheat. Then a steep drop in world prices, following the unloading of American and Russian barley on the European markets, had disastrous effects on Iraqi cultivators. Government assistance was necessary, but even the abolition of tithes in favour of a tax on sales only (p. 484), and the lowering of freight charges, could not prevent a very great drop in the acreage sown with barley, which seems to have been halved. In effect, barley was grown for local consumption only between 1930 and 1935, but between 1935 and 1939 cultivators recovered confidence. The total production increased to parity with wheat by 1938, with 590,000 tons, and the acreage rose to 2,535,000 acres. From 1939 to 1942 barley maintained this level, exceeding wheat production by one-third. With an average export of 227,000 tons from 1935 to 1939 barley ranks close to dates among agricultural exports, but its market is less dependable.

Wheat

Climatic conditions and relative abundance of rainfall make wheat the principal cereal in the Assyrian plains of northern Iraq where dry farming methods can be used. In southern Iraq it is less important than rice and barley, though grown in certain areas as an irrigated winter crop, particularly when there is the prospect of good prices through the failure of the autumn rains in the Rainfall Zone.

The principal wheat districts are, in northern Iraq the Assyrian plains, and in southern Iraq the Baghdad, Kut, and Diwaniya provinces. Secondary regions are the Gharraf region of Muntafiq province, the Diyala province, the Tigris province of Amara, and the

Euphrates provinces of Dulaim and Hilla, but these regions normally produce together only one-fifth of Iraqi production.[1]

There are several native varieties of local origin, known as Mosul, medium Mosul, Baghdad, Qantara, and Nasiriya. Their grain is reddish and hard, yields are poor, they are very liable to rust, and their late maturity renders them liable to destruction by locusts and the sunna insect (p. 464). After several experiments the Department of Agriculture has produced a variety of Punjabi wheat called Ajiba which has early maturity, marked resistance to rust, and heavy yield. Its grain is superior to that of the native wheats, which have a very low value on world markets, where 'Persian Gulf grain' has a bad name.

Wheat is best sown in northern Iraq from 15 October to the end of November. Later sowings give poor yields. The earliest crops ripen about 3 May in northern Iraq and harvests continue into June, the native varieties coming in about ten days later than the new strains. In the south the harvest is in April and May when the floods have subsided.

There was a steady expansion in acreage up to about 2,000,000 acres in 1937 with a total production of 600,000 tons in 1938, since when production has receded to an average of 400,000 tons. The average yield is about 2½ cwt. an acre.

Rice

The three great rice-growing areas are the marshlands of the lower Euphrates between Suq ash Shuyukh and Kabaish, the marshlands of the lower Tigris round Amara, and the lands watered by the Hilla and Hindiya channels between Hilla and Rumaitha and particularly in the Shamiya district; the rice-fields of the lower Diyala are less extensive. Rice is grown on a yet smaller scale in northern Iraq by means of local irrigation channels from rivers, chiefly in Sulaimaniya province, in the Qara Tepe district of Kirkuk province, and in some valleys of northern Kurdistan.

Rice is the third of the grain crops of southern Iraq and exceeds them in value to the cultivators where it can be grown, because yield and price are generally higher than for barley and wheat. It is a summer crop sown in February and April, usually near marshes and the banks of rivers or canals, and harvested from July to September. It needs heavy irrigation and is extravagant of water. Hence by a

[1] There has been a notable rise of cereal production in Kut and Muntafiq provinces since 1934 as a result of extended pump and canal irrigation.

law of 1932 its cultivation was restricted to certain acreages in areas dependent on canal irrigation, though not where water was taken direct from rivers. Other limiting factors have been the extension of cotton cultivation and measures taken for the control of malaria. But production has always remained high, and doubled between 1936 (180,000 tons) and 1938 (360,000 tons). Yields depend largely upon the amount of water available and may reach half a ton to the acre or twice the yield of barley. The bulk of the crop is eaten in Iraq, where there is a great demand for it, though there was a small exportable surplus before 1940. The principal varieties are known as Anbar, Naqqaza, Huwaizaqi, and Khadrawi, the first two being the finest. Acreage rose from 360,000 in 1936 to 540,000 in 1938. Later information is not available.

Dates

Over four-fifths of the world's production of dates are estimated to come from Iraq, and dates are the most reliable agricultural export of Iraq. They come mainly from the palm-groves lining the Shatt al Arab, which contain 15 or 16 million trees in Iraqi territory, compared with 8 or 9 million trees in all French North Africa. Dates are also grown northwards to Ana on the Euphrates and to Samarra on the Tigris, beyond which points the winters are too cold for effective cultivation. The date-palm matures its fruit only where there are long, hot, rain-free summers, rain preventing the fertilization of the flowers and the ripening of the fruit. Yet the palms need a liberal supply of water at the roots in order to bear heavy crops. Quality of soil and water is less important. The date is more tolerant of a degree of salinity than any other cultivated crop in Iraq and grows in a variety of soils, limy loam, river silts, and desert sands, but dislikes both a permanently water-logged and an over-dry soil, though it will endure even these for many years.

Varieties of dates are numerous, totalling over a hundred, but the commercial sorts for export are restricted to four: Halawi, Khadrawi, Zahidi, and Sayir or Istaamran. These differ in quality and yield. Halawi are the choicest, grow quickly in a variety of soils, are fairly resistant to disease, and yield 44 lb. a tree. Khadrawi are more liable to disease, need more careful cultivation and more regular irrigation, produce 30 lb. a tree, and are of a good quality. Zahidi, the commonest kind in the Baghdad area, grows rapidly, is very resistant of disease, and yields heavily, up to 126 lb. a tree, so that though prices are cheap the profit is adequate (photo. 176). They have a high sugar

content and are much used for the distilling of spirit. Sayir, the commonest in the Basra region, is the easiest to grow and is very resistant to disease, but poor in quality and sometimes inedible, and its yield is not heavy, 37 lb. a tree, but it is widely planted and much used for extracting date syrup. The choicest varieties of dates seldom reach even the local markets of Iraq but are eaten by their growers.

Date-palms yield best when the soil is well tilled. Though they have been known to live untilled for fifty years, both quality and quantity of yield are then poor. In the Shatt al Arab district the land is spade-dug 4 feet deep every fourth year; the use of ploughs is prevented by the irrigation channels and usually a quarter of each plot is dug every year. Elsewhere an annual but shallower ploughing is customary. Careful irrigation is equally necessary for good yields. On the Euphrates and Diyala this is done by flow from canals, and around Baghdad by lift from the Tigris, but in the Shatt al Arab area the plantations are irrigated by the action of the tide, which drives the fresh water of the river up into the creeks (p. 440). Near Fao the water is saline at spring tides and the fruit is of poorer quality; elsewhere mineral content, as magnesium-sulphate at Badra or sulphur at Shithatha, does not affect growth. The average number of palms per acre varies considerably, in the Shatt al Arab zone, between 84 and 176. A very common proportion is 122 female palms, 3 male palms, with 15 young plants and about 40 other fruit-trees to the acre. Male palms are grown specially, near Fao, for the export of pollen to other areas (photos. 19, 56, 170, 176).

The palm flower is bisexual and needs artificial fertilization to ensure heavy crops. The cultivators climb the palm and fertilize the female inflorescence either with a sprig of a male flower or with pollen from a muslin bag, usually in April. The harvest is in August, when there is an influx of tribesmen to help in the gathering. There are several stages of ripeness, of which the last three are edible: *khalal*, sweet and juicy; *ratab*, moist and firm; and *tamar*, toffee-like, the condition of all exported dates.

Total production in normal times averages about 288,000 tons, of which about half are exported and half consumed within Iraq either as food or as the raw material of the spirit industry (p. 473). The date-palm is also used for a remarkable number of subsidiary purposes. Date stones are pounded for cattle fodder. Its wood yields a light strong timber for building houses, boats, bridges, or furniture, and can be used for the manufacture of paper. The leaves are used for baskets, and the outer fibres of the trunk for rope-making.



177. *Breeding-ground of the Moroccan locust on the south-west slope of Jabal Atshan, near Mosul. Alt. 1,400 feet, April 1933*



178. *Fruit-garden cultivation in Central Iraq*



179. *Camels grazing on Alhagi Maurorum (camel-thorn). Larger bushes are tamarisk. Kut–Baghdad road*



180. *Sheep grazing on Stipa tortilis steppe, near Khanaqin, alt. 750 feet, March 1932*



181. *Sheep grazing on upper slopes of Algurd Dagh, c. 10,000 feet, July 1932*

The date is the sole agricultural export in which Iraq has no serious rival; the advantages of water transport enable Iraqi dates to undersell north African dates even in north Africa. But extension of the supply of fresh fruit in Europe and America forced Iraqi date-growers and packers to improve their methods in order to maintain their exports. Government assistance has been limited to research into the control of pests, advice on methods of cultivation, packing and marketing, and also to advertisement. The weakness of the Iraqi product lies in the poor quality of some of the kinds grown and in the unattractive methods of packing commonly followed.

There are no statistics for the area planted with date-palms or for their number. A probable estimate is between 21 and 30 million trees in areas totalling 350 square miles. The Shatt al Arab district extends 108 miles from Fao to Qurna with a breadth of from 1 to 2 miles along both banks (those on the left bank below Saiyid Raqir being in Persia) and produces over half of the total crop. Five other smaller regions average a production of 24 thousand tons each: the lower Euphrates (Muntafiq liwa) from Qurna to Nasiriya; the Middle Euphrates region (Hilla and Diwaniya liwas); the Husainiya canal zone around Karbala with the desert oases of Shithatha and Rahhaliya (p. 122); the Baghdad plantations extending for 20 miles along the Tigris; and the Diyala canal zone and local irrigated zones of Badra and Mandali, the latter producing the choicest dates of Iraq. In the Shatt al Arab zone smallholdings predominate, the total area of 112,000 acres being owned by 6,000 persons, of whom 5,500 are smallholders.

Cotton

The principal cotton areas are in the Baghdad canal zone, particularly along the Yusufiya and Saqlawiya canals, the Diyala and Hilla canal zones, around Kut on the Tigris, and on a smaller scale in irrigable lands of Mosul province.

Though cotton is a summer crop which has long been grown in Iraq for local purposes, its extensive cultivation for export is the result of encouragement given since 1919 by the Department of Agriculture and by the British Society for the Cultivation of Cotton. This society built a ginnery at Baghdad and maintained an experimental cotton plantation, the success of which created great interest in cotton growing among the cultivators of Baghdad, Diyala, and Hilla provinces. The suitability of the soil and of the climate and the abundance of irrigable water, with the long absence of frost and rains

in the growing period, followed by the sharp fall of temperatures in the autumn, all helped to produce large crops. Departmental experiments have shown that the best sowing period for central Iraq is from mid-March to mid-April, and that cultivation on ridges is better than on the flat.

The principal difficulties of cultivation are certain pests, particularly the boll weevils, and soil salinity, much disliked by cotton and intensified by the heavy irrigation which is necessary and by the inadequate drainage. The crop is, however, more popular with landowners, pump-owners, and sarkals than with the fellahin, who dislike a crop the value of which depends on factors beyond their control and cannot be realized until the product has been marketed, unlike a food crop which pays rent and fills bellies independently of markets. The Department of Agriculture produced several strains of which the Akala and Rustamiya proved most satisfactory. The Akala strain yielded 1,750–2,100 lb. to the acre, the average length of fibre being 27·5 mm., the product from ginning 31·9 per cent., and the weight 49·8 grammes per 100 seeds. By 1928 5,200 bales were being produced, but then a series of seasons of low water, visitations of Nejdi locusts (p. 464), and finally the catastrophic fall of cotton prices in the world economic crisis of 1930–1934, led to a considerable reduction of plantation. In later years the crop recovered its popularity with the improvement of world prices, and in 1939 both plantation and export reached the highest known figures of 79,000 acres and 2,900 tons of ginned cotton. By 1941 the acreage had increased to 225,000, but in 1942 acreages were cut by 75 per cent. when the Japanese market disappeared (p. 492). Evidently neither the peacetime nor the war-time importance of cotton in Iraqi agriculture is yet firmly fixed.

Tobacco

The principal tobacco districts are Sulaimaniya province, and the districts of Koi Sanjaq, Rania, and Ruwandiz in Erbil province. Tobacco has been grown for centuries in Kurdistan, but the crude local methods produced an unfermented powdery straw suitable only for the Kurdish cigarette-tube. It is a summer crop usually grown in small plots in the mountainous districts by local irrigation. In 1929 the Department of Agriculture sent instructors, hired from abroad, through the tobacco-growing villages, and a small quantity prepared under their instructions gained a much higher price than had hitherto been given for 'Kurdi' tobacco. The department also

introduced better varieties of Balkan and Turkish tobaccos, and raised new cross-bred strains, distributing seeds and seedlings from its nurseries. The new methods were quickly adopted by cultivators and the crop of improved tobacco increased rapidly from 20 tons in 1930 to 2,400 tons in 1934. The increase in value of the improved crop, which is almost entirely taken up by the cigarette factories of the country, has been immense. The rate of yield, about 6 cwt. an acre, compares favourably with that obtained in Syria and Turkey.

From 1937 to 1939 plantation averaged 10,000 acres with a production of 3,000–4,000 tons, apparently including both improved and unimproved sorts.

Minor Crops

Farm crops of secondary importance include millets, beans, and lentils as food or fodder crops, and flax, sesame, and silk as industrial crops. Information about these is scarce and the only statistics are limited to 1937–1938:—

Crop	*Acres*	*Production in metric tons*
Millets . . .	242,000	199,000
Beans . . .	58,000	38,000
Lentils . . .	12,000	5,000
Sesame . . .	48,000	20,000
Flax for linseed . .	30,000	8,000

Beans (broad, haricot, and kidney) are winter crops, and their cultivation is fairly widespread; there is no surplus for export. *Millet* is a summer crop, harvested from July to October, grown in northern and central Iraq on riverain lands by lift or flow irrigation. The giant millets or *durra* (sorghum) grow 10–12 feet high; the red and green yield best on irrigated land, but are very resistant to climatic changes when not irrigated; lower Tigris and Shatt al Arab are the principal areas. There is normally an export surplus of about 20,000 tons and much is consumed within Iraq, as fodder, chicken food, and flour.

Maize or Indian Corn is sown late in summer and harvested in September; *sugar-cane*, cultivated since remote times, is eaten as a vegetable, and seldom matures for sugar production. *Lentils* are a summer or a winter crop; they flourish on damp, sandy soils but require no great quantity of water. The *lubiya* or kidney peas, both red and white, are sown on irrigated land in June, eaten green in July, and harvested dry in October. *Onions* may be reckoned a farm crop, with an estimated production of 4,000 tons from 17,000 acres in 1938.

Of the minor industrial crops, *flax* has been grown increasingly by enterprising cultivators as a winter crop in the place of wheat and

barley, sown from mid-October to mid-November. It can be grown by irrigation or by rainfall either for fibre or for linseed; the yield of straw is good, though the quality of the fibre is indifferent, and there is lack of experience in the processing or 'retting' of the straw in water. Hence cultivation for linseed predominates, the seed yielding an oil content of about 40 per cent. Fluctuation of world prices discouraged cultivation between 1925 and 1930, but it is a promising crop for Iraq. The Department of Agriculture has assisted cultivators by the selection of varieties and experiments in processing. The principal areas are in the provinces of Baghdad, Kut, Dulaim, Hilla, and Diwaniya in southern Iraq, and of Kirkuk in the north.

Sesame, another oil seed, is a long-established summer crop, grown by irrigation in many districts of southern Iraq, particularly along the Shatt al Arab. Part of the crop is processed within the country and used as cooking fat or eaten as a sweetmeat (halawa), and between 3,000 and 7,000 tons are exported. *Hemp*, a fibre plant, is of little economic importance; the Deccan sorts flourish, but the native kind has a poor cellulose content. *Sugar-beet* has been introduced, but as a farm crop it is experimental, particularly on irrigated lands, where its shape is bad and its sugar content low.

Sericulture. The ancient silk industry of Abbasid Baghdad was first revived by the Turkish Government before 1914, disappeared during the War of 1914–1918, and was re-established between 1920 and 1922 when the Department of Agriculture set up a section for the import and breeding of sound strains of eggs and also the supply of mulberry seedlings, of which the 'Baghdad white' strain proved superior to local kinds. Sericulture is a small-scale industry carried out in scattered localities, and often in enclosed gardens. Baghdad and Baquba are the principal centres. Sufficient silk is produced for the satisfaction of Iraqi silk industries, but the export of silk has not been very successful, partly because silk has suffered generally from the competition of artificial silk, partly because Iraqi production was not large enough to justify the establishment of a modern commercial filature.

Fruit and Vegetables

The growing of fruit (other than dates) and vegetables is more extensive in the northern (Rainfall) Zone than in southern Iraq. Particularly in Kurdistan the heavy rainfall and the limited size of the holdings encourage these crops, which are also grown in the plains around towns and villages near rivers from which local irriga-

tion is possible; summer vegetables are often grown in the broad beds of the rivers near the water's edge. In southern Iraq the concentrated population of Baghdad has created a market-gardening industry in the vicinity; here, as also along the Shatt al Arab, vegetables and the smaller fruit-trees are commonly grown by intercropping in palm-groves and orchards. Summer vegetables include pumpkins—the characteristic vegetable of Iraq—water melons, cucumbers, *bamia* or 'ladies' fingers' (*Hibiscus esculentus*), tomatoes, onions—much in demand by nomad tribesmen as keeping vegetables—*badinjas*, egg fruit, haricot beans, and potatoes which are increasing in popularity in northern Iraq. Winter vegetables are cabbage, cauliflower, carrots, turnips, spinach, beetroots, globe artichokes, and salads such as cress, radishes, lettuce, and celery.

Fruit. The vine ranks as a principal crop in the Kurdistan mountains. It is grown on terraces and without irrigation particularly in the Shaqlawa district, where the foothills are dotted with vineyards. The small purple grapes are in season from August to December; the harvest proper is in October, when the grapes are cut and dried in the open for raisins or sultanas. In the Assyrian plains white and purple dessert grapes are cultivated by irrigation in a few vineyards. Other fruits include peaches, nectarines, apricots, red and white mulberries, apples, cherries, plums, pears, and quinces, the less hardy sorts being commoner in central Iraq. Figs are widely grown especially in Jabal Sinjar and Baghdad districts, both the white and the black, which is the finer but rarer; the trees bear from their fourth to their fiftieth year and longer. The Diyala fruit belt, 20 miles long, between the Khurasan canal and the Diyala river is the main fruit-growing area of central Iraq (photo. 173).

Other fruits include pomegranates, limes, lemons, both sweet and sour, and oranges. The best orange-groves are at Baquba, but oranges are also grown near Mosul. Olives and many nuts are grown in northern Iraq, such as pistachios, almonds, and walnuts. In northern and central Iraq the timber of walnut and mulberry is in demand for making ploughs and water-wheels and also for house building.

There is no statistical information about the production or area of vegetables and fruit-trees, but 88,000 acres are estimated to be under vineyards and orchards other than palm-groves.

Wild Plants

Liquorice grows abundantly on river banks, both in northern and southern Iraq; the root is collected in winter, dried—a four months'

process—and exported principally to the U.S.A. *Gall nuts* from the scrub oaks of Kurdistan are another valuable product, collected in summer for use in the tanneries of Baghdad and also for export to Europe. *Gum tragacanth* is also collected for export from the tragacanth tree, principally in Kurdistan.

Pests and Disease

As in all hot climates insect pests are numerous, but this account is concerned only with those that radically affect the agriculture of the country. Certain pests cause disastrous damage, particularly to cereal and date crops, and are also largely responsible for the general inertia of the Iraqi fellahin, who become unwilling to labour for improvement of their land when heavy losses from pests appear certain.

Locusts are the principal plague of Iraq. The Moroccan locust appears almost every year north of the Diyala and of the latitudes of Ana and Tikrit, south of which climatic conditions are unfavourable, though in 1926 a late swarm reached Kut. In years of ample rainfall and early harvest the locusts in the hopper stage find sufficient food in the desert, and when later the flying swarms invade Iraq the cereal harvest may be already gathered; if crops are late the winged swarms do much damage. In years of poor winter rainfall the hopper locusts invade the sown lands before the harvest and do great execution, sometimes amounting to 70 per cent. of the crop. In 1928 great alarm was caused by the appearance in southern Iraq of swarms of the Nejdi locust out of Arabia. Its usual habitat is north-eastern Africa, and climatic conditions of Iraq were not propitious to it, so that it proved much less destructive than the Moroccan locust, especially since it preferred the leaves of trees to grain (photo. 177).

Measures for fighting locusts have been well organized since 1926. The Plant Protection Section of the Department of Agriculture maintains locust stations throughout the country and has introduced several methods: these include the use of poisoned baits, the spraying of crops with poisonous solutions, digging of ditches to trap hoppers, ploughing of infested fallows to destroy eggs, or spraying them with crude oil. The eradication of the pests calls for the co-operation of all the countries of the Middle East, and an international bureau has been established at Damascus which pools information about the movements of locusts and methods of fighting them.

The *sunna* or *arghija* insect (*Eurygaster integriceps*) causes great damage to cereals in northern Iraq, principally north of Kirkuk.

Though it extends south to the latitude of Baghdad, the earlier harvests south of Kirkuk reduce its incidence. North of Kirkuk the pest is worst in years of late harvest. The insect arrives by flight and does not winter in Iraq. Plants are attacked in three phases. The insects feed on the stems and their larvae, having hatched out on the ground, attack the stem and then the ear. The attacks on the stem induce the plant to produce a number of secondary leaves which weaken the growth of the ear, and the attack on the ear may totally destroy the grains. Pest control is mainly by removal of infested plants at an early stage, or by the growing of early varieties which avoid the pest, or by beating the growing corn with a hand-net, by which means 75 per cent. of the worms may be caught and a great part of the crop saved; one man can thus clear an acre in 2 hours. Barley is far more resistant than wheat, having a thicker husk and maturing earlier.

Rust, which is a fungus disease, attacks wheat. Its severity depends upon climatic conditions and the variety of wheat. Rust decreases the crop and spoils the flavour and colour of what is left. Methods of control advocated by the Department of Agriculture are proper rotation of crops and adoption of resistant varieties. *Bunt* disease is checked by the cleansing of seeds with copper carbonate.

Aphides, a universal pest of fruit and vegetables and of cotton and barley, are controlled by the usual method of spraying.

Mice and *rats* cause considerable damage in northern Iraq, and the Plant Protection Section instructs cultivators in their destruction by use of poisoned baits, and by smoking their holes with sulphur.

Ghubar, Tineid moth, and palm beetle are the principal pests of date-palms, which have, however, considerable resistance to pests.

Ghubar, or 'dust' (*syn.* toz, trab, maghabba), is caused by red spiders (Tetryanchus) which in June spin webs over the date-clusters. The webs collect dust and the blanket of dust prevents the fruit from ripening. Losses of crop, especially of the finer sorts, may be very high. The pest is controlled by various sprays, but poison sprays are dangerous because dates are eaten unwashed.

Hashaf or hamera is caused by Tineid moths which lay eggs in the date inflorescence. The maggots eat their way out of the fruit like apple maggots, and it falls to the ground unripe. Great losses are thus caused. A beetle grub, apparently the larva of *Priotyranus mordax* weakens palms by boring into the crown and bases of the fronds; it is controlled by a wash of lime and nicotine. The pest was

increasing in 1935 to a dangerous extent. Another beetle larva (*Oryctes*) attacks the crowns of palms but is less widespread. A saprophytic fungus and grey scale (*Parlatoria Blanchardi*) are less common and do less damage.

Stock breeding

Probably as many families depend upon stock breeding for their livelihood as upon cultivation of crops. It is the sole source of wealth of the semi-nomadic or *shawiya* tribes (p. 336) and many of the *fellahin* tribes also keep sheep and cattle. Statistical information about herds and flocks is even more unsatisfactory than for agriculture, so that it is difficult to assess the balance of value between herds and crops, but it is noteworthy that in the export trade the total value of animal exports is about two-thirds that of agricultural exports. Yet stock breeding is regarded in official circles as but a step-child. Far greater attention has been paid to the development of agriculture, and the general policy of all governments since the time of Midhat Pasha has been to convert shepherd nomads into cultivators, largely for political reasons and in the interest of the landowners. But it is by no means certain that the improvement of stock breeding, particularly of sheep, does not offer a simpler and equally suitable method of enriching the population. The myth of Babylonia and the fascination of irrigation have perhaps had an undue influence on economic policy. Agriculture and stock breeding do not seem to have been regarded as complementary forms, yet even in the primitive system of Iraq they are so. The limiting factor of stock breeding is irregularity of natural grazing and the inadequacy of fodder supplies, particularly in southern Iraq. The basic agricultural problems—such as soil salination, the shifting of cultivation and of the fellahin population, and the extreme dependency of the cultivators for the disposal of second-class products upon an overcrowded world market—all these might well be modified by a more systematic interrelation of stock breeding and cultivation. At present fodder crops are seldom grown, and the custom of pasturing the flocks of the nomadic tribes upon the fallow fields of the cultivators is unsystematic and uncontrolled.

Sheep and goats, cattle and camels, are the animals bred for their produce, of which sheep and goats predominate (Table I, p. 476). Beasts of burden or draught include the ubiquitous donkey, cattle and buffaloes, camels, mules and horses.

Sheep

Sheep are bred in all regions outside the cultivated areas and the marshlands. Their distribution corresponds to that of the semi-nomadic tribes described in Chapter VII. In northern Iraq where pasture is greatly restricted by agriculture east of the Tigris there are two main pastoral regions. The first includes the northern Jazira and the plains and foothills adjoining the Tigris and lower Khabur in Mosul province. The second is the southern section of the Assyrian plains and foothills between the middle Diyala, Jabal Hamrin, and the Little Zab, extending north of the Little Zab into the Qaraj desert and to the fringes of the cultivated Erbil plain. The shepherd zone stretches south of the Jabal Hamrin to the lower Diyala and continues west of the Tigris in the Jazira from the Jabal Sinjar to the Euphrates canals. In southern Iraq the western and southern deserts are a great pastoral zone. Between the two rivers a major pastoral zone extends east from the fringe of the Hilla and Daghghara canal system across the Shatt al Gharraf to the lower Tigris marshes. Between the Tigris and the Persian frontier shepherd pastures reach south-east from the Diyala canals to the Hawiza marshes.

All sheep-breeding depends on seasonal migration. In winter and spring shepherds follow the growth of vegetation in the steppes and deserts, and retire to the rivers and canals as the summer heat dries it up, pasturing flocks upon empty lands close to the water-courses and marshes or upon cultivated fallows, after making an agreement with the cultivators whereby the fellahin receive a rent in animals or their produce in addition to the manuring of their fields. This system is not confined to the flat lands of southern Iraq but also applies to the north, with the difference that a few shepherd tribes make an extensive migration to the high mountain pastures of the Persian border in summer and withdraw to the valleys and plains in winter (Jaf, p. 373; Pizhder, p. 375; Herki, p. 377).

Sheep are bred principally for wool, but also for milk, meat, and hides. Wool is a major export and is used for both domestic and factory industries. There is also a valuable export trade in live sheep, principally from Mosul province to Syria and Palestine; in recent years part of this traffic has gone by motor lorry, a development which may increase the stability of the trade by rendering it independent of climatic variation of the grazing.

There are four native breeds, Arabi, Karadi, Awassi, and the fat-tailed Tartary. The Arabi sheep, which is commonest in the plains, has a fine crinkly fleece valuable for wool. The Karadi or Kurdish

sheep is fatter and larger, but its fleece is coarser. The Awassi, commonest in the northern Jazira, is a cross between Karadi and Arabi. The fat-tailed sheep, which is principally found in the neighbourhood of Mosul, yields mutton of good quality. The native breeds are capable of producing fine wools comparable with average Australian products, and also strong wools for carpet manufacture, which provides a steady market, but they need considerable selection and standardization. The Veterinary Department has been experimenting with various English breeds and crosses with native kinds, apparently with good success despite the difference of climate.

The number of sheep on which tax was collected in 1938–1939 was about 5,500,000, but the total number within the country is probably very much larger. The figure is comparable with the 7,500,000 sheep of the far smaller country of Scotland. The distribution by provinces (Table I, p. 476) is generally misleading, but the predominance of Mosul and the relatively small figure for Dulaim are noteworthy. Both indicate the value of adequate summer pasture, which in Dulaim province is too small a fraction of the extensive winter pasture available in the desert.

Goats

Goats, being mountain animals, are numerous in the four provinces of northern Iraq. They are also kept in relatively large numbers in the adjoining provinces of Baghdad, Diyala, and Kut; elsewhere they are only of subsidiary importance. The number of goats taxed in 1938–1939 was about 2,250,000, of which 1,500,000 were from northern Iraq (Table I, p. 476). They serve the same purposes as sheep but their produce is less valuable, though ordinary goat-hair is used for the material from which the tents of nomads are made. There are three breeds, Syrian, Angora, and Kurdish; the latter two produce a fine silky mohair much more valuable than the ordinary kind but are apparently rare, since mohair is imported for commercial purposes. Iraqi Angoras need considerable selection to purify the strains and are generally well below the level of Turkish Angoras both in purity and physical condition. The annual production of ordinary goat-hair is about 100 tons.

Cattle

Cattle are mostly kept by fellahin and semi-settled tribesmen in riverain areas where there is permanent pasture. They are used as draught animals principally for ploughing and working water-lifts, and as beasts of burden, but are not bred for meat, though their hides

eventually reach the tanner's yard. Milk products such as buttermilk and clarified butter (*ghi*, p. 344) are staple foods, and ghi is a valuable export item. It is only round Baghdad and at a few other towns that one or two farms exist solely for the production of milk and milk products.

The southern Zubairi strain of cattle is superior to the small northern breed both in size and yield of milk, but cows seldom yield milk for more than 3 or 4 months, at the best. The Veterinary Department has attempted to improve strains in northern Iraq by importing steers of the Sindi and Rustaqi breeds, and establishing breeding farms of its own and kraals from which bulls are lent to villagers. This service was extended to Baghdad and Diyala provinces in 1939–1940.

The methods of stock farmers are most primitive. Animals are not protected in severe weather and fodder is seldom available for milk-animals. Large numbers perish in seasons of drought. Cleanliness and elementary care of animals do not exist, and there is no segregation of sick animals, so that diseases spread rapidly.

Despite the importance of cattle in the agricultural and commercial system, there are no figures available for their number, since draught animals are not taxed and villagers naturally classify their milk-animals as draught cattle. Estimates vary between 250,000 and one million. The number killed in inspected abattoirs is about 28,000 a year, and the number exported after veterinary examination about 25,000. The surplus production of ghi ranges between 300 and 400 tons in a good year. The Bani Lam tribesmen of the Amara district are noted as the best stock breeders of southern Iraq, and a second cattle district of mark is the Euphrates region within easy reach of Baghdad.

Water buffaloes replace sheep (rather than cattle) as the principal means of subsistence of the non-cultivating tribesmen and marsh Arabs in the marsh-lands of the lower Tigris and Euphrates. They produce large quantities of indifferent milk; their flesh is eaten and their hides are used for leather, but they are not normally used as draught animals in these areas. Elsewhere they are kept in small numbers and replace cattle as draught animals. They need careful attention and suffer from insects in summer and cold in winter.

The table of tax receipts shows that out of a total of about 60,000 one-third are in Amara province, one-half are evenly distributed in Basra, Muntafiq, and Diwaniya provinces, and a few hundreds in each of the other provinces.

Camels, which are essentially animals of the plains, are the principal source of wealth of the beduin tribes of the southern and western deserts and are also bred by certain semi-settled tribes of Lower Mesopotamia. Beduin keep them for their products—milk and camel-hair—and for sale to the towns as meat or as beasts of burden. The replacement of the camel by the lorry for desert transport has reduced the demand for pack animals, but as a source of meat there is no reason why camel-herding should decline. Their use in southern Iraq is limited by the fact that the soft going of the alluvial plains in winter makes camel transport useless.

Camels are of the single-humped species and are either pack or riding animals. Pack camels are of heavy build and carry from 400 to 600 lb. for 15–25 miles a day. Thoroughbred riding camels are more slightly built and are capable of maintaining a steady amble of 6 miles an hour for several days consecutively with due rest.

The number of taxed camels was about 80,000 in 1938–1939, and showed a slight but steady increase since 1935. A quarter are in Dulaim province and the remainder are fairly evenly distributed through the provinces of the plains, though surprisingly few are in Baghdad and Basra provinces.

Donkeys, Horses, and Mules

Of these, donkeys are far the most important, being the principal pack and riding animals of the whole country. The usual kind is black or dark brown, small and wiry, but there is a special white breed of riding donkey, with long tail, large in size and strong, originating from Nejd. The principal breeding-centres are in the neighbourhood of Baghdad, Hilla, and Samawa.

The raising of thoroughbred horses is a speciality of certain tribes, particularly the Shammar, Amarat Anaiza, and Bani Lam. The horse is mainly an article of luxury and not of general economic importance; genealogies are preserved and the various Arab breeds are carefully distinguished. Horses are also used for carts and carriages, principally in towns, though the total number of horse-drawn vehicles did not exceed 1,400 in 1940. In Kurdistan the semi-nomadic tribesmen keep ponies and use them as ordinary riding animals and also for pack transport. Tel Afar is the principal horse market of the north. Mules also are a Kurdish animal, principally used for pack transport; the best are imported from Persia.

No statistical information exists for any of these animals and their distribution cannot at present be usefully mapped.

182. *Netting fish from a mashuf*



183. *Crushing grain by hand*

184. *A copper-smith's shop at Baghdad*



185. *The bread-market in Kirkuk*

Poultry are ubiquitous and include pigeons, turkeys, ducks, and geese, in addition to fowls. The latter provide an export, both of eggs and birds, to Palestine and Syria, which despite violent fluctuations between 1936 and 1939, seems to have a promising future. Poultry food is available at cheap rates in Iraq, but methods are primitive and disease is prevalent. Iraqi poultry, however, have a good name by Middle Eastern standards. No general production figures are available, except for the export of eggs, which in the best period (1936) reached 19 millions and in 1940 stood at about 4 millions. It is also known that half a million table birds were exported in 1935.

Fresh-water fish, like poultry, are exported to Palestine, in refrigerated vans, particularly for the Jewish market. This trade increased from 500 tons in 1935 to over 1,000 in 1940. The fish of the Euphrates and Tigris are described on p. 204. Little information is available about fishing methods or the numbers of persons employed, but netting is extensively practised from boats (photo. 182), and from the size of the receipts of tax levied on fish it seems that a great quantity is taken yearly for market, in addition to that consumed by marsh tribesmen at home. The tax value of the yearly catch varies between £10,000 and £20,000.

Diseases and Veterinary Department

In Iraq cattle diseases spread quickly and often cause high mortality. Losses may amount to £240,000 in a single year. Thus the main work of the Veterinary Department has been concerned with disease control through its principal hospitals, dispensaries, and itinerant surgeons, though it also makes experiments with new breeds and crosses foreign stock with native, using for these purposes the farms of the Department of Agriculture.

The department has generally been understaffed and recruits have been few, because the value of veterinary work was little understood in Iraq as in other Middle Eastern countries. Its powers were somewhat limited until 1936, when a 'Law on malignant animal diseases', supplementing earlier legislation, compelled the administrative authorities to co-operate with the veterinary surgeons. Cattle farmers and shepherds have, however, been fairly quick to appreciate the benefits of inoculation and washes demonstrated by the department. In 1934 the department's laboratory was enlarged and production of sera and lymphs hitherto imported was undertaken.

Of some thirty-six diseases listed by official sources only a few cause serious losses. Rinder-pest or cattle plague used to be among

the worst, and was difficult to check because, as is common with other diseases in Iraq, infection was brought in by the seasonal migration to and from Persia and Turkey. Systematic inspection and inoculation have greatly reduced its incidence. Two diseases of sheep and goats, strongylosis and piroplasmosis, cause debility which may result in the death of up to 50 per cent. of flocks when winter grazing is scarce. These and other tick-borne diseases have been effectively checked by the adoption of simple sheep-washes. Other serious diseases of sheep include pleuro-pneumonia and sheep pox. Glanders, surra fly, and epizootic lymphangitis, are endemic equine pests; there is a belt or region of surra on the Euphrates above Nasiriya. Anthrax is only sporadic, and foot-and-mouth exists only in a mild form. Buffaloes suffer from haemorrhagic septicaemia, which may cause heavy losses in a dry season when the marshes are exceptionally stagnant; it is controlled by inoculation.

Minor Industries

Mineral oil, omitted from this survey as being extraneous to the normal industrial life of Iraq, is described on pp. 492 ff.

Not only is Iraq not an industrial country but it is short of even those forms of light industry necessary for the processing or packing of agricultural products, and also of those which usually accompany the urban civilization of agricultural countries. Such modern industries as exist are of these two types, but the greater part of the manufacture and preparation of foodstuffs, clothing, furniture, and utensils is done by 'cottage' industries and small workshops, usually gathered together in the bazaars of the larger towns, where smiths, carpenters, potters, weavers, and shoe-makers ply their traditional crafts and sell their goods on their own doorsteps.

Before 1930 there were no modern factories in Iraq, but their creation has been encouraged by legislation dating back to 1929 with the object of reducing imports of manufactured articles, particularly by the remission of customs dues on imported machinery and materials, and remissions of income tax and property tax on industrial establishments. By 1940 there were 70 concerns enjoying these benefits, the principal groups being:

Bricks and tiles	20	Distilling	4
Cigarettes	8	Milling	6
Textiles	6	Soap	3
Cotton ginning	3		

Nine-tenths of these factories are concentrated in Baghdad, principally because this is the focus of communications and the market centre of the whole country. Power is provided by an abundant supply of cheap fuel oil from Khanaqin (p. 497), either burnt in steam-engines or converted into electricity, and there are adequate supplies of water from the rivers for industrial purposes. Small electric power and lighting plants exist in nearly all towns, but information is incomplete and no general survey can be given.

Apart from brick manufacture for housing, the industries are mainly concerned with the conversion of cereals, dates, tobacco, oilseeds, cotton, wool, and hides into food or clothing.

Milling. Except for two or three flour-mills at Baghdad, flour is milled in very small plants or by domestic appliances (fig. 77, photo. 183).

Distilling. Four distilleries (3 near Baghdad, 1 in Mosul) together produce 330,000 gallons of proof spirit from 4,000 tons of dates a year under government supervision; the bulk of this is converted into *araq*, the national drink.

Cigarettes. About half of the 2,500 million cigarettes smoked annually are made by hand in the bazaars of every town and village, and there are five factories in Baghdad with a combined output of 1,300 million cigarettes a year.

Vegetable Oils and Soap. There are five principal oil-crushing plants in Baghdad. Four have primitive machinery badly maintained and an annual production of about 100–500 tons each, but the fifth, new in 1943, has an annual capacity of 1,500–1,750 tons a year of castor, cotton, sesame, or linseed oil.

The local vegetable oils are all soft, and hard oils (copra) are imported for soap manufacture. There are three large soap factories at Baghdad each capable of producing 3,500 tons a year, and eight small factories with a combined capacity of 5,000 tons a year. This is more than enough for local needs. There are also local bazaar soap-plants.

Cotton. There are now (1943) three ginning factories in Baghdad, which prepare the whole cotton crop for export. None is spun in Iraq.

Wool and Textiles. The exportable surplus of wool is pressed and baled by five plants in Baghdad, each with a daily capacity of 100 bales.

Three spinning and weaving factories in Baghdad represent 90 per cent. of the total factory spinning capacity; the number of hand-looms in houses and workshops is unknown, but must be

considerable. The Baghdad factories have in all 7,680 spindles and 85 looms and employ 975 workers; during the war they have been producing 552,000 yards of cloth a year. There are two grades, winter cloth, all wool, 57 inches wide, weighing about 14½ oz. a yard, and summer cloth, 57 inches wide, of cotton warp and woollen weft, weighing about 9½ oz. a yard. About 100 tons of knitting wool are produced, most of which is exported.

Six workshops in Baghdad and one in Mosul produce knitted woollen goods such as socks and pullovers. It is notable that though carpet manufacture in domestic workshops and bazaars is extensive, no fine rugs are made in Iraq, the so-called 'Mosul rugs' being made in Turkish Kurdistan. Other fine rugs on sale originate as the offerings of foreign pilgrims to the Shia shrines.

There is a small artificial silk factory at Mosul producing 14 tons of silk cloth a year from imported yarn; part even of this is woven on hand-looms in private houses.

Tanning and Shoes. There are many tanning yards throughout the country producing half-tanned goat- and sheepskins, mainly for native use. The single tannery producing fully tanned hides at Baghdad closed down in 1937, but is about to be reopened (1943). Leather for footwear is imported. Bazaar workshops provide the bulk of the footwear needed. Only 7 out of 22 registered shoe factories at Baghdad have electrical machinery. The largest has an annual capacity of 30,000 pairs.

Bricks and Tiles. The brick industry is extensive, as clay is the sole building material in the plains. The building expansion of the last fifteen years has encouraged the use of modern methods, though the delta alluvium does not require elaborate treatment. Works are numerous near Baghdad, the largest producing 40,000 bricks a day in summer, and half as many in winter. Three tile factories near Baghdad produce fair tiles for roofing, but glazed house tiles are poor.

Miscellaneous Domestic Needs

Small ice and soda-water plants are found in nearly all towns. Nine ice factories at Baghdad have a total capacity of 270 tons refrigeration, and thirty elsewhere produce 200 tons. A carbon dioxide plant for the central supply of the soda-water industry was built in 1940, 9 miles north of Baghdad. It produces 1 ton a day from 800 kg. of gas oil. There is a small plant at Baghdad for the production of pressed glass-ware from the remelting of broken glass, with a potential output of 1½ tons of glass in 24 hours.

Minerals

Salt production, about 9,000 tons a year, is taxed and strictly supervised. The largest deposits are at Fao, Hit, Kom, and Tuz Khurmatli.

Manjaq, bituminous brown coal of low grade, is mined at Kifri by the State Department of Mines. Production in 1943 was 2,240 tons.

Gypsum is worked mainly at Mosul, Kifri, and Falluja, and sulphur found with it is sufficient for local needs. Potassium nitrate, crystal quartz, sandstone, and dolomite occur, but are nowhere exploited extensively.

Engineering

Commercial workshops, nearly all at Baghdad, include four small plants for machinery repairs, two for making spare parts for agricultural machinery, and a tool factory which can produce 180,000 assorted tools in six months. But the establishments of the State Railways employing 1,000 workers are the most modern and complete establishments in Iraq; they can produce castings up to 2 tons. The Public Works Department has a smaller engineering plant.

Boat Building

Apart from the modern repair workshops at Basra-Maqil (p. 514) this is limited to small yards at Hit and Nasiriya on the Euphrates, and Mosul, Baghdad and Basra on the Tigris, which make native craft varying from the canoe-like mashuf and bellum, and the shakhtur or native lighter, to the larger sailing craft known as safinas or mahailas. The trade is generally in the hands of the Sabians.

Labour

There is a great shortage of skilled labour of every kind (p. 451); hence there is no unemployment problem in Iraq. In 1936 a Labour Law was enacted, based on the advice of the International Labour Office. It concerns hours of work and rest, employment of women and children, workmen's compensation, labour unions, and so forth. In 1937 a 48-hour week and 8–9-hour day was instituted under this law, the application of which caused a few local strikes. Few trade unions have come into being. Rates of pay for unskilled labour had risen from 30 to 50 fils by 1937; war-time needs, however, have caused a crisis in this as in other economic spheres (p. 485).

TABLE I. *Animals taxed by Koda Tax in 1938*

Liwa	*Sheep*	*Goats*	*Camels*	*Buffaloes*
Basra	132,000	1,500	700	8,900
Amara	556,000	26,000	7,700	20,100
Kut	341,000	154,000	3,900	2,100
Muntafiq	588,000	50,000	7,400	9,000
Diwaniya	454,000	24,000	8,600	9,000
Hilla	339,000	36,000	1,600	3,100
Karbala	130,000	4,000	7,800	700
Dulaim	277,000	65,000	20,300	300
Baghdad	295,000	106,000	2,900	2,200
Diyala	458,000	158,000	5,700	1,300
Sulaimaniya	140,000	221,000	..	200
Kirkuk	548,000	330,000	5,000	400
Erbil	395,000	372,000	1,300	600
Mosul	870,000	676,000	9,500	1,600
Totals	5,523,000	2,223,500	82,400	59,500

The figures are rounded off to the nearest 1,000 or 100. After 1938 the method of taxation ceased to be any guide to the number of animals.

TABLE II. *Estimated Annual Average Production of Principal Crops (1935) in Tons*

Liwa	*Wheat*	*Barley*	*Rice*	*Dates*	*Others*
Amara	21,777	45,610	99,068	..	11,066
Baghdad	70,876	113,200	252	15,496	5,375
Basra	725	881	444	165,000	1,625
Diwaniya	26,214	39,609	38,959	25,313	9,262
Diyala	14,906	50,824	6,636	13,567	3,135
Dulaim	18,556	36,963	672	3,055	895
Erbil	72,906	62,849	2,814	..	666
Hilla	12,098	20,404	27,873	24,008	12,659
Karbala	403	2,410	33	12,440	77
Kirkuk	61,689	58,194	9,309	..	777
Kut	17,339	30,032	840	424	5,524
Mosul	109,359	67,505	4,330	..	9,109
Muntafiq	6,721	12,002	19,249	28,809	5,768
Sulaimaniya	36,453	44,227	5,196	..	555
Totals	470,022	584,710	215,675	288,112	66,493

In four areas given in Table III these figures appear to need correction, otherwise they are a fair guide.

TABLE III. *Estimated Production of Cereals in Tons for 1943*

Liwa	*Wheat*	*Barley*
Baghdad	46,000	49,000
Kut	68,000	97,000
Muntafiq	21,000	70,000
Sulaimaniya	3,000	5,000

TABLE IV. *Distribution of Agricultural Pumps according to Liwas and Rivers in 1939/40*

Liwa	Tigris and branches other than Diyala		Diyala		Euphrates and Euphrates Canals		Shatt al Gharraf		Shatt al Arab and Basra Creeks		Total	
	No.	Horse-power	No.	Horse-power	No.	Horse-power	No.	Horse-power	No.	Horse-power	No.	Horse-power
Mosul	21	1,017	..	..	..	..	..	..	..	..	21	1,017
Erbil	1	40	..	..	..	..	..	..	..	..	1	40
Sulaimaniya	..	..	..	..	..	..	..	..	..	..	..	..
Kirkuk	4	155	..	..	..	..	..	..	..	..	4	155
Diyala	32	1,236	20	917	..	..	..	..	..	..	52	2,153
Baghdad	865	26,221	74	2,364	76	2,480	..	..	..	..	1,015	31,065
Dulaim	..	..	..	..	198	5,862	..	..	..	..	198	5,862
Hilla	..	..	..	..	52	1,310	..	..	..	..	52	1,310
Karbala	..	..	..	..	23	374	..	..	..	..	23	374
Diwaniya	..	..	..	..	305	10,634	..	..	..	..	305	10,634
Muntafiq	..	..	..	..	67	2,782	..	..	..	..	67	2,782
Kut	424	19,468	..	..	..	..	69	3,027	..	..	493	22,495
Amara	240	8,190	..	..	..	..	..	..	..	..	240	8,190
Basra	..	..	..	..	..	..	..	..	161	3,748	161	3,748

TABLE V. *Size and Number of Agricultural Properties in Seven Liwas (1930)*

	1–64 acres	*65–319 acres*	*320–640 acres*	*Over 640 acres*
Erbil	7,418	528	500	..
Diyala	4,092	..	546	..
Baghdad	162	220	120	360
Dulaim	2,344	109	121	3
Hilla	452	364	98	82
Diwaniya	8,378	..	155	69
Amara	..	10	5	50

CHAPTER XI

CURRENCY, FINANCE, COMMERCE, AND OIL

CURRENCY

So long as the vilayets which were later formed into the kingdom of Iraq remained a part of the Ottoman Empire, Ottoman currency prevailed. From April 1916 onwards this was nominally on a gold basis, but it had greatly depreciated because gold was continually being withdrawn from circulation and paper substituted. The British forces during the war brought Indian rupee notes and silver with them and these rapidly displaced Ottoman currency in regions of occupation. This introduction of Indian currency was inevitable for military purchases in Mesopotamia since the armies were at first administered and financed from India, and it continued when the military authorities acted as treasurers of the civil administration. At the end of 1916, in order to avoid the chaos of the two parallel currencies, Turkish currency was demonetized in the occupied areas; a little later a rate of exchange of 14 rupees to one Turkish gold pound was fixed, so that debts in the earlier currency could be paid, the rupee being then stable at 1*s.* 4*d.* sterling. Turkish and not British gold coin was, however, still in circulation in Iraq at the end of the war, particularly among the desert tribesmen. For this and other reasons the prohibition on the Ottoman currency was relaxed in 1920.

The rupee was not displaced by a national Iraqi currency and note issue until 1 April 1932. Under the law that instituted this change the Iraqi dinar (I.D.), of the value of a pound sterling to which it is tied, equals 5 riyals, or 20 dirhams, or 1,000 fils. Notes are for a quarter (5*s.*), a half (10*s.*), and one dinar, and for 5, 10, and 100 dinars. Silver coins for 50 fils (dirham = 1*s.*) and 20 fils (about 5*d.*) are in circulation, and other coins for 10 and 4 fils (nickel), 2 and 1 fils (bronze). The 50-fils coin weighs 9·0 grammes, and the 20-fils, 3·6 grammes. A larger coin of 200 fils (riyal = 4*s.*) was put into circulation in June 1933. The currency is controlled by an Iraqi Currency Board sitting in London. The value of the rupee was fixed at the same time at 75 fils (1*s.* 6*d.*). In 1935–1936 the Currency Board made a contribution of I.D. 15,000 to the Iraqi treasury. In the following year this contribution was increased to I.D. 81,000.

The progressive growth of the Iraqi currency is shown in the following table:

Currency in Circulation in I.D.s

31 Dec. 1933	2,898,363	31 Mar. 1939	4,773,297
" 1934	3,429,365	" 1940	6,183,293
" 1935	3,794,320	" 1941	6,623,291
" 1936	4,641,312	" 1942	c. 22,000,000
" 1937	5,003,312	" 1943	c. 25,000,000
31 Mar. 1938	4,838,300	31 Dec. 1943	c. 34,000,000

PUBLIC FINANCE

In Ottoman days Iraq was probably an expense rather than an asset to the Government in Constantinople, although with the very complicated system of public finance in force it is hardly possible to say on which side the balance really fell. The principal taxes were farmed out to tax-collectors, who were expected to hand over fixed amounts and were permitted to retain for themselves any surplus they could wring out of the taxpayers. It was a profitable pastime in some areas, but dangerous and unprofitable in others.

Tax farming, known as *iltizam*, had a long history in the Ottoman dominions. It was based broadly on a system of tithes, which was generally understood and unquestioned, but in practice the tithe was much modified, and demands would often vary widely and inexplicably. The assessment of the value of agricultural produce was more difficult in Iraq than elsewhere for four reasons: (*a*) lack of exact and local knowledge on the part of the taxing authority, since most of the country was unsurveyed; (*b*) the structure of society was unfavourable, since marketing conditions varied widely, trade followed no settled channels, and account books were rarely kept by traders; (*c*) the agricultural public was unwilling or unable to co-operate with the administrative authorities; and (*d*) the officials were often ill-educated, lazy, and corrupt, with the result that they preferred to pass on the difficulties of assessment to others, at a price.

The British authorities at once took steps to bring order out of this chaos. To begin with, the allocation of taxes which had hitherto been the concern of five different departments, each responsible to the central government in Constantinople, was centralized in one, a newly created Revenue Department. Its tasks were to suppress the tax-farmer and to fix a definite rate of taxation which did not fluctuate with market prices. These goals, though steadily kept in view, were not attained immediately.

Reforms were begun long before the whole of Iraq was occupied, but it was not until the financial year 1919/1920 that the Mosul vilayet was included, so that until that year the financial administration

was largely provisional. In that year a Financial Secretariat was constituted, the collection of revenue being entrusted to the Revenue Secretary and that of customs to the Commercial Secretary. When ministries were instituted the Financial Secretariat was renamed the Ministry of Finance, without, for a brief period, change or extension of function. In April 1921, however, a Department of Customs and Excise was constituted in the Ministry of Finance, and in the following October matters relating to land revenue were similarly transferred. The Department of the Comptroller and Auditor-General was instituted in 1924. British officials held most of the higher posts in the Ministry of Finance until 1930, when they were replaced in their executive offices by Iraqis, though they remained in the Ministry as advisers.

In 1925 the financial administration was again reformed, and the Iraqi Government then set out a clear policy in regard to the assessment and collection of land revenue:

1. To reorganize revenue collection and to provide adequate methods of auditing and accounting, in order to remove as far as possible opportunities for speculation either by officials or private individuals.
2. To dispense with the costly and vexatious task of forming annual estimates of agricultural yields which were disturbing to the cultivator and a source of corruption.
3. To set a definite and fixed rate of demand, payable in cash, applicable to each type of land, whether owned privately (*mulk*) or by the State (*miri*), and to the method of irrigation employed on it (p. 443).

This policy meant that fixed demands must eventually be based upon a cadastral survey and an assessment of the productive capacity of the units of cultivable land, and for the four reasons given above could only be introduced gradually.

The Budget

In 1919/20 the country was still disorganized and, as might be expected, the so-called civil expenditure (522 lakhs of rupees) still exceeded the revenue (495 lakhs), though the deficit was not large (27 lakhs).[1] Of the expenditure approximately 28 lakhs (£215,670)

[1] A lakh is a hundred thousand, generally shown with commas thus: 1,00,000. The exact figures were (at 1*s.* 6*d.* to the rupee):

Expenditure . .	Rs. 521,87,780	or £3,914,083
Revenue . .	Rs. 495,36,510	or £3,715,238
Deficit . .	Rs. 26,51,270	or £198,845

were spent on medical services, nearly 10 lakhs (£74,194) on education, 52 lakhs (£391,875) on irrigation, and 7 lakhs (£53,720) on agriculture. It was not until the financial year 1923/4 that the budget showed a surplus (85 lakhs), and there was a surplus in each of the following years until 1928/9, when a deficit again appeared. The accumulated balance was mostly spent by 1930 in payment of Iraq's share of the Ottoman debt (p. 485) and in railway reconstruction (p. 581).

Two separate budgets are now presented to Parliament annually, the ordinary budget of revenue and expenditure, and a special budget for capital expenditure. Both are scrutinized by the Finance Committee of the Chamber, which frequently succeeds in obtaining alterations, mainly to reduce expenditure. After the money has been spent the accounts are scrutinized by the Comptroller and Auditor-General, who is independent of the executive and responsible direct to Parliament that only the authorized expenditure has been made. The revenue and expenditure for the years 1938/9 and 1939/40 are shown on page 482 under main headings; the special budgets from 1934/5 to 1939/40 on page 483 give the sums received from oil royalties and their disposal on capital works.

The budget machinery is thus sound enough. But although over the whole period of the State's existence expenditure and revenue have been approximately balanced, and although there is no burden of a national debt, the financial position of Iraq is by no means absolutely secure. In the first place the standard of living and consequently the actual spending power of a very large part of the population are low, with the result that revenue derived from direct taxation, as for instance on incomes, or land, or produce, is inconsiderable in normal times, and that from indirect taxation, even from customs duties, is not much. Thus in 1931/2 income tax only brought in a revenue of £104,409 (p. 484). On the other hand, inflated ideas of expenditure were inherited from the period of false prosperity which began during the war and lasted for some years after 1918, when the British spent large sums of money in the country. The present war has also brought considerable expenditure by British and American interests, but this apparent prosperity must be only temporary. In normal times the independent status of a country with a small population of small means such as Iraq can be very costly. Between the two wars the greatest efforts had to be made to balance the budget. Officials, especially British, were reduced in number, salaries were cut drastically, and taxation was raised to a

point above which it could not go without diminishing returns. The only natural source of wealth, apart from agriculture, is from the oil deposits, and the royalties derived from these were at first used to meet current expenditure, though since about 1935 have been mostly available for capital purposes (p. 498).

Ordinary Revenue and Expenditure under Main Heads
(*figures in Iraqi dinars*)

Revenue		
Main head	*1938/9*	*1939/40*
Winter and summer crops	408,721	419,131
Vegetables and fruits	87,836	98,325
Palm trees	70,623	78,038
Tobacco and other produce	33,365	56,273
Rents and tolls	71,687	45,325
Animals	251,485	190,292
Property and radio taxes	132,177	155,697
Income tax	315,977	370,013
Stamp duties	149,833	145,970
Pension contributions	114,195	128,138
Oil shares (ex royalties)	83,407	73,540
Land and property sales	11,680	13,037
Repayment of agricultural loans, interest, and miscellaneous	59,617	95,128
Import dues	2,573,494	2,578,120
Export dues	10,067	11,360
Transit dues	3,446	1,815
Excise (alcohol)	114,257	113,902
Excise (salt)	36,768	38,374
Excise (tobacco)	272,585	313,426
Excise (motor spirit)	204,541	262,084
Emergency tax	..	29,056
Miscellaneous, customs, and excise	47,162	39,507
Posts and telegraphs	285,404	338,349
Court dues and fines	99,680	100,950
Tapu fees	77,111	82,245
Departmental receipts	281,729	308,759
Minerals	4,192	6,199
TOTAL REVENUE	5,801,039	6,093,053

Expenditure		
Main head	*1938/9*	*1939/40*
Pensions	185,772	237,322
Repatriation and pensions of foreign officials	13,161	16,777
Civil list	58,058	53,104
Parliament	41,738	69,317
Comptroller and Auditor-General	8,668	8,690
Office of the Council of Ministers	5,432	4,649
Special services	15,980	23,406
Ministry of Foreign Affairs	79,152	92,272
Ministry of Finance	327,664	306,270
Charitable grants and miscellaneous expenditure	18,114	18,182
Customs and excise	184,979	198,543
Ministry of Interior	432,109	425,656
Prisons	63,807	67,824
Police	674,575	685,950
Ministries of Social Affairs and Economics	..	30,859
Public Health	357,999	362,323
Ministry of Defence	1,620,030	1,969,167
Ministry of Justice and Law Courts	149,738	148,240
Tapu Dept. and Land Settlement Dept.	39,299	71,899
Ministry of Education	718,100	828,465
Ministry of Communications and Public Works	22,942	17,381
Public Works and Stores	181,404	209,069
Posts and telegraphs	204,856	227,969
Surveys	47,405	52,604
Agricultural and Veterinary Services	96,267	117,711
Irrigation	123,489	125,499
TOTAL EXPENDITURE	5,670,738	6,369,148

Revenue

The principal sources of revenue are oil royalties, customs duties, excise, agricultural and other produce, and income tax. Oil royalties are now treated separately (p. 483).

Customs Duties. The most important item of ordinary revenue is the customs duties, but some of these duties are evaded because of

the long land frontiers where collection is difficult. Import duties may serve two purposes: the protection of home industries and the raising of revenue. In Iraq only the latter is important. Imports do not compete with local products, and there is no reason to exclude any goods for which there is a demand.

Special Budget
(*figures in Iraqi dinars*)

Revenue

	1934/5	1935/6	1936/7	1937/8	1938/9	1939/40
Oil royalties	1,010,304	598,202	599,968	730,731	1,977,458	2,014,088
Advance from petroleum companies . . .	..	..	..	..	..	1,000,000
Contribution by Currency Board	..	..	..	..	60,000	60,000
Foreign Credits Accounts	..	..	..	..	..	40,415
TOTAL REVENUE . .	1,010,304	598,202	599,968	730,731	2,037,458	3,114,503

Expenditure

'3-year programme' .	..	197,732	223,683	..	..	..
Productive capital works (5-year plan) . .	428,222	1,037,844	2,179,111	2,372,746	2,463,565	..
Productive capital works (4-year plan) . .	..	..	..	..	..	2,232,916
TOTAL EXPENDITURE .	428,222	1,235,576	2,402,794	2,372,746	2,463,565	2,232,916

To facilitate administration the customs duties were revised at the end of April 1933. Duties were abolished on all exports except dates, gold, horses, and liquorice. Most import duties were reduced, and those on machinery and raw material were abolished; but there were some increases, those on luxury articles, including silk and artificial silk, being doubled. The transit tax is very small—one-tenth of one per cent. *ad valorem*.

Excise duties are imposed on tobacco, alcohol, petrol and kerosene, and salt. With the exception of that on salt all these duties have been increased since the institution of an Iraqi Government. Salt is a government monopoly and the duty on it has been reduced during the same period.

Agriculture. The difficulties of assessing land and agriculture for taxation have already been mentioned. Until 1931 assessment was by numerous different methods, dependent on the district, on local custom, and on the nature of the crop. Taxation varied from 10 to 20 per cent. of the gross value of the crop and in exceptional cases

even exceeded the latter figure. When rent or land tax payable to the State was added, the total sum payable sometimes exceeded 40 per cent. The system was radically revised in 1931 by the adoption of the *istihlak* or consumption tax. By this Act a tax on produce at market or for export was substituted for assessment at harvest or at the threshing-floor, and that part of the produce consumed by the cultivator and his family was freed from tax. This reform swept away the old complicated system, brought relief to the small agricultural taxpayer, and to the revenue officials, without seriously affecting the State revenue. This tax on produce sold is now the only charge on cultivators, excepting rents for land and water for irrigation, which are not taxation in the strict sense. Although the yield from agricultural taxation has remained fairly stable, its proportion to other taxes has fallen. In 1923 agriculture brought in 30 per cent. of the revenue from taxation; ten years later it was 18 per cent.; in 1938/9 only 11 per cent. The fall is, however, partly attributable to the fall in price of agricultural produce.

These taxes on agricultural produce are thus a form of excise. Similar duties are imposed on fish at marketing centres, and on animals, but methods of assessment are not yet uniform, and, as with agricultural produce, there are considerable loopholes for evasion.

Income tax was introduced in 1927; it is not a satisfactory source of revenue. The very small section of the population with fixed salaries pays the tax in full; merchants, shopkeepers, professional men, and even landowners evade a large part of their dues. Many are too uneducated to keep accurate accounts; merchants often keep their accounts only in their heads. Even without intentional evasion it is often impossible to make accurate assessment, and in practice the full tax is paid by very few except State officials and foreigners. The following table gives the gross revenue in dinars derived from income tax in selected years:

1928/9	28,500	1937/8	287,561
1931/2	104,400	1938/9	315,977
1935/6	248,613	1939/40	370,013

Expenditure

There is little that calls for summary comment in details of expenditure. The largest recurring items during the period 1934/5 to 1939/40 were defence (26%) and police (13%), which are perhaps surprisingly low, but are accounted for by the fact that the defence of Iraq is really a strategic obligation of Britain. Expenditure on education amounted to 11 per cent. over the same period, but was

rising at the end and now comes second. Recurring expenditure on irrigation, agriculture, and veterinary services only totalled 4 per cent. Capital expenditure on new irrigation works is met from the special budget (p. 483).

The Ottoman Debt. Iraq's share of the Ottoman Debt was fixed in 1924 at a capital sum of £T 8,388,127 in gold (including arrears of interest) and various amounts were to be paid off yearly. The Iraqi Government, acting on British advice, managed to liquidate the greater part of this liability by buying securities in the open market at a cost of £1,228,000 and handing them to the Debt Council in settlement. Although purchase of the securities continued for over two years, the secret was closely kept, and by the end of 1928 the only outstanding liabilities which could not be liquidated in that manner amounted to £383,000. An agreement was made to pay this sum in seven equal annual instalments, and by March 1934 the transaction was completed, though only by wholesale reductions of salaries and refusal of appropriations for expenditure which might not unjustly have been considered essential.

Other Debts and Loans. In June 1937 Iraq's first public loan, of a million pounds in 4½ per cent. bonds issued at 94, was successfully floated in London. The proceeds were earmarked for expenditure on the extension of the Iraqi Railways (p. 583). In the previous year the railways had been purchased from His Majesty's Government on payment of a sum of £494,000 (p. 582). The whole of the loan was repaid at par in 1943. Indebtedness in respect of the cost of purchase and of extensions to the Basra port has been relieved by a series of annual payments, but part is still outstanding.

Recent Trends. The outbreak of war in 1939 did not immediately affect the economic situation of Iraq. By July 1941, however, a serious and rapid deterioration had set in. An unsatisfactory cereal harvest, the great increase of expenditure in Iraq by Britain and America for war purposes, the entry of Japan into the war, all contributed to lead to a rapid rise in prices, accompanied by the evils of profiteering, speculation, and hoarding. Between March 1941 and March 1942 the amount of currency in circulation more than trebled, from approximately 7 to 22 million dinars, and by the end of 1943 it reached 34 millions. Imports were still further curtailed and the cost of living rose to still greater heights. Large sections of the population—all except those living on fixed incomes and the farmers of northern Iraq—benefited for the time being, and Iraq became a creditor instead of a debtor nation.

Banking

Banks in Iraq fall into two categories: those engaged in financing foreign trade and those concerned with internal affairs. Of the former, the Ottoman Bank, the Eastern Bank, and the Imperial Bank of Iran (formerly of Persia), have been established for many years in Iraq and now have branches in the principal towns. They cover all branches of banking. Until 1940 the Italian Banca di Roma also had a Baghdad branch. The second category comprises the many local bankers (*sarrafs*) who accept deposits, discount bills, and give short-term advances against property and bullion. This form of banking developed considerably during the 'thirties, and recently the use of cheques has extended. In 1936 the Government established an Agricultural and Industrial Bank, whose main purpose was to provide cheap credit to cultivators and for new industrial ventures, and in 1941 the Rafidain Bank was established to act as a State bank; the latter also undertakes domestic banking and to some extent finances foreign trade. In 1935 a Post Office Savings Bank was authorized and has since achieved remarkable success. The ruling bank rate was 6 per cent. until August 1932, then fell to 3 per cent. but rose again. The maximum interest chargeable on loans is limited by law to 7 per cent.

Under the Law for the Control of Banking of 1938, banking is defined as the taking of deposits and the making of advances of any kind, and the purchase, sale, and negotiation of commercial bills of all kinds. This definition applies to foreign banks trading in Iraq, as well as to local banks. No bank is allowed to purchase immovable property or lend money on the security of it, except buildings for its own occupation, and property taken in settlement of debts, in which case it must be sold within five years.

Merchants give credit among themselves on a system of *compialas* (promissory notes) and in times of crisis they help one another and seldom have recourse to the courts in case of failure.

COMMERCE

Apart from the export of dates and barley, the import of manufactured goods, and the transit trade with Persia, the external commerce of Iraq stood at a low level in Ottoman days. Foreign trade expanded greatly during the war, but the increase was not caused by greater production but by the requirements of the occupying armies. At the end of the war purchases within the country by the British had increased to such an extent that cereal exports had fallen

almost to nothing; at the same time imports from outside had risen to more than five times their pre-war value.

Comparison of Foreign Commerce in 1912 and 1920 (lakhs of rupees)

Year	Principal exports					Total exports*	Total imports
	Dates	Barley	Wheat	Wool	Hides and skins		
1912	70	168	36½	45½	7	487	398
1920	215	8	½	8½	20	1,038	2,327

* Including transit trade and re-exports.

The year 1920 was a record one for the export of dates, but an appreciable part of the increase in total trade was caused by an enlarged transit trade with Persia (p. 488). Moreover, the increased *value* of trade between 1912 and 1920 did not reflect an equally large rise in *volume*, because of the rise in prices.

The prosperous conditions of 1920 were short-lived. A decline and then a slight improvement in 1923 were followed by a second decline, as the army of occupation and foreign requirements were reduced. Nevertheless, excluding transit trade and the import of currency and bullion, there was very little difference in the value of trade between 1923 and 1928. It was a period of reconstruction, and throughout this period exports remained at about half the value of imports. The figures in Iraqi dinars are:[1]

Year	Exports	Imports
1923	3,165,000	6,592,500
1928	3,169,136	7,019,665

The world price of commodities was now falling greatly, so that the volume of the principal Iraqi exports (dates, grain, pulse and flour, hides and skins, and raw wool) and of the chief imports (textiles and sugar) must have been rising.

The year 1928 has been chosen for comparison to show the trend of events before the world economic crisis. It is interesting to compare the figures for 1928 with those of 1938 before the war crisis. In spite of fluctuations, trade increased under both heads:

Year	Exports	Imports
1931	2,638,107	4,752,305
1933	2,218,878	6,102,726
1935	2,855,675	6,803,723
1936	3,483,649	7,177,110
1937	5,568,734	9,608,602
1938	3,688,835	9,408,052

[1] The figures for 1923 have been converted from lakhs of rupees at the rate of 1 lakh = I.D. 7,500

Invisible Exports

The widening gap between the value of visible imports and exports shown by these figures would have been most serious but for several factors. The ordinary invisible exports were not large. They comprised disbursements by the British Government on the Royal Air Force stationed in Iraq, profits from the transit trade, expenditure by foreign countries on diplomatic and consular representatives, money spent by pilgrims, tourists, and visitors, by officials of the oil companies, and by foreign charitable, educational, and archaeological institutions. Against these must be counted the invisible imports—similar remittances to countries outside Iraq, such as the cost of Iraqi representatives abroad. The balance in favour of Iraq was never large. But the largest 'invisible export' is derived from royalties and concession rents on oil, which are not shown in the figures given above, but form a very important source of revenue (pp. 483, 498). Moreover, in the import figures above is included a considerable sum spent on the machinery and steel required for capital works such as railways and irrigation, as well as for the I.P.C. which assists revenue under other heads.

Since 1938 conditions have been affected by the European crisis, the war, and perhaps by political and economic uncertainty regarding the future. As might be expected, there was a rise in the value of exports up to I.D. 4,181,570 in 1941 and a fall in imports to I.D. 6,966,320. Later figures must be abnormal, but are not yet available.

Transit Trade

Before 1914 it was estimated that transit trade with Persia represented half Iraq's foreign trade. For a short period after the war Iraq had almost a monopoly of this, because of the Russian revolution and the virtual closing of the Russo-Persian frontier to trade. But by 1929 the decline of this transit trade with Persia was already marked. Soviet Russia, through political channels and with State subsidies, was already a serious competitor. To meet the situation Iraq reduced transit and port dues and increased railway and other transport facilities. On the other hand, Persian nationalism began to encourage direct trade rather than transit trade through Iraq. The result of all these factors has been a steady fall in the transit of goods through Iraq to her neighbours, which would have been even greater but for growth in the direction of Syria, which has been encouraged by the development of better communications.

Since 1940 there has been a marked change, and goods have flowed through Iraq both to Turkey and to Persia. The completion of the railway between Baghdad and Tel Kotchek in that year, the construction of the line from Tanuma to the Trans-Iranian railway between Bandar Shahpur and Ahwaz, and of the line from Kut to Jassimiya (p. 584), combined with the pressing needs of Russia and Turkey, have had a marked effect on the transit trade, as is shown by the figures below. It must be remembered, however, that this increase is quite abnormal, and that these railways will be unable in normal times to compete with direct channels of trade.

Transit Trade through Iraq (in Iraqi Dinars)

Year	Value	Year	Value
1924	7,507,500	1937	2,101,974
1926	4,170,000	1938	3,526,930
1930	2,756,518	1939	1,822,466
1935	2,298,044	1940	3,110,600
1936	1,641,274	1941	7,375,253

Principal Exports and Imports

The principal exports of Iraq (excluding mineral oil) are agricultural and pastoral products—dates, raw wool, cereals, raw cotton, animals, and animal products. Of these, dates are the most reliable export, and Iraq is the largest world exporter, though the value has fallen since the peak year of 1920. Cereals are more dependent on the harvest, on world markets, and on the needs of the country and its internal condition, but their total export value often comes first. Raw wool is generally third; but raw cotton, which is much more speculative and dependent on world political conditions, has risen rapidly since 1935, after a hesitant start, and jumped into third place among exports in 1941 (when the whole crop went to Japan), though this was partly caused by a poor cereal harvest in that year.

Principal imports are divided among a number of articles—textiles, machinery, iron and steel, sugar, and tea being perhaps the most important.

The value of principal exports and imports for the years 1937 to 1941 are given on page 490.

Customers and Suppliers of Iraq

Iraq's best customer is Great Britain, which in a normal year before the war (1938) took nearly a third of her exports. Next came the U.S.A. with a quarter; and, excluding Japan which was abnormal (*below*), India was third with about an eighth, rather more than the

total taken by the immediate land-neighbours of Iraq, excluding transit trade. A free customs zone at Haifa was granted to Iraq in 1936, but advantage has not been taken of it.

Value of Principal Exports (Dinars)

	1937	1938	1939	1940	1941
Grains, pulses, and flour	2,101,521	1,158,063	1,014,735	1,048,804	438,070
Wool (raw)	1,010,424	437,709	630,644	814,966	964,772
Dates	974,216	887,140	963,224	1,044,996	1,018,113
Hides and skins	381,400	185,356	155,142	109,090	191,935
Animals (live)	300,434	185,497	246,609	309,110	393,906
Cotton (raw)	206,974	217,663	121,731	176,789	403,987
Intestines (casings)	143,809	111,763	62,598	80,531	44,125
Seeds	55,346	82,976	46,901	68,418	46,673
Ghi	29,948	10,388	6,537	13,909	268
Liquorice roots	22,712	17,842	10,540	23,205	1,718
Fish	8,640	23,570	28,707	35,161	50,196
Eggs	6,348	2,548	2,231	6,993	11,205

Value of Principal Imports (Dinars)

	1937	1938	1939	1940	1941
Cotton piece goods	1,068,507	833,013	1,050,063	855,464	664,474
Iron, cast iron, and steel	1,240,045	1,057,696	755,215	651,479	390,227
Boilers, machinery, and tools	612,886	995,838	556,951	271,508	303,660
Sugar	440,053	505,143	554,185	753,339	826,281
Artificial silk piece goods	529,121	419,543	377,717	531,904	344,083
Tea	351,022	346,878	332,103	423,130	380,717
Automobiles and their parts	468,669	397,073	320,081	201,216	177,927
Clothing	374,133	349,483	312,466	289,645	330,594
Electrical machinery	189,072	242,322	231,841	226,386	159,481
Ammunition	129,923	29,196	211,269	119,052	..
Timber	328,043	336,736	163,296	104,229	115,896
Cement	175,242	183,672	157,029	182,791	57,669
Woollen piece goods	288,608	239,588	142,285	161,145	106,929
Chemical and pharmaceutical products	196,626	112,265	133,962	173,034	142,059
Arms	214,020	131,860	126,802	3,873	..
Paper and cardboard	144,921	150,830	118,115	219,547	204,011
Motor spirit	83,740	91,334	104,781	74,052	53,429
Rubber and rubber articles	98,041	102,199	92,130	130,821	150,956
Aircraft and watercraft	185,173	367,075	88,169	21,843	..
Fuel oil	75,668	75,596	79,342	61,344	144,700
Wooden boxes for packing dates	73,855	65,869	76,359	110,975	134,433
Soap	95,521	101,835	66,656	109,107	95,926
Silk piece goods	34,284	34,079	20,877	14,624	8,502

Great Britain in the same year (1938) supplied more than one-third of Iraq's imports (including much of the plant and equipment for the oilfields); the U.S.A. about one-eighth (including most of the motor-cars); India one-tenth; and the Dutch East Indies one-sixteenth.

The position of Japan both as supplier and customer has been abnormal. In 1930/1 Japan supplied only 1·8 per cent. of the total imports of Iraq. This figure rose to 4·4 per cent. in 1931/2, to 6·8 in 1932/3, to 11·7 in 1933/4, and to 20 per cent. in 1934/5. The

Iraq's Foreign Trade (Dinars) by Countries of Origin and Destination (including re-exports)

	1937			1938			1939			1940			1941		
	Exports	*Imports*	*Difference*	*Exports*	*Imports*	*Difference*	*Exports*	*Imports*	*Difference*	*Exports*	*Imports*	*Difference*	*Exports*	*Imports*	*Difference*
United Kingdom	1,547,508	2,825,787	−1,278,279	891,678	2,819,434	−1,927,756	926,292	1,917,057	−990,765	1,089,365	1,702,250	−612,885	585,974	1,337,719	−751,745
United States of America	1,149,804	727,378	+422,426	557,054	849,462	−292,408	738,546	688,530	+50,016	1,082,468	947,248	+135,220	1,053,966	955,417	+98,549
India	357,812	656,988	−299,176	298,240	605,263	−307,023	421,306	586,287	−164,981	362,152	947,274	−585,122	308,841	1,299,322	−990,481
Palestine and Transjordan*	371,459	25,150	+346,309	187,433	17,989	+169,444	309,605	14,586	+295,019	463,789	21,742	+442,047	497,431	28,197	+469,234
Japan	477,224	1,747,367	−1,270,143	355,034	1,385,833	−1,030,799	169,073	1,526,840	−1,357,767	254,951	1,616,621	−1,361,670	446,250	1,048,402	−602,152
Dutch East Indies	888	352,771	−351,883	1,267	406,400	−405,133	2,946	449,368	−446,422	3,399	732,499	−729,100	3,439	838,999	−835,560
Persia	88,686	385,704	−297,018	128,592	395,087	−266,495	197,549	407,526	−209,977	68,167	364,573	−296,406	72,465	427,247	−354,782

* Exports do not include the piped oil from Kirkuk to Haifa.

value rose from I.D. 98,000 to 1,224,006. In the same period Japan took little of Iraq's exports—the value in 1934/5 was only I.D. 6,871—and the position had become so serious that Iraq was compelled in 1936 to pass a law which bound Japan to take exports from Iraq up to at least 15 per cent. of the value of her imports to Iraq. This percentage was increased to 25 per cent. in 1937, but it had no great effect on the adverse trade balance with Japan. In 1938, the year taken as normal in other respects, exports to Japan had risen to over I.D. 355,000, but imports from Japan had increased to about I.D. 1,386,000, so that the adverse balance of trade was still over a million dinars, with no invisible exports to set against this figure.

Japan purchased wheat and cotton, when forced to buy; in fact the whole of Iraq's cotton export went to Japan in 1941. This materially helped the cotton industry of Iraq, but added to its speculative and uncertain future, as the figures for 1942—not yet available—must show.

The principal customers and suppliers and the value of their trade with Iraq in recent years are shown in the table on page 491. The only countries with which Iraq had a favourable trade balance in normal times were Palestine and Transjordan, and the U.S.A. Nearly three-quarters of the exports to Palestine and Transjordan are made up of live animals—mostly driven across the desert 'on the hoof', though an increasing number are transported by lorry—and one-fifth of the exports comprise grain. The U.S.A. takes most of the date crop.

Shipping Lines

In pre-war days all commerce by sea was carried under foreign flags. In the period 1935–1937 vessels of 4 British or British-Indian steamship lines called at Basra; 4 Japanese companies and 1 company each from U.S.A., Germany, Italy, the Dutch East Indies, and Sweden were also represented. Greek and Soviet vessels called occasionally (p. 515).

OIL

THE tradition of mineral oil in Iraq dates back to the Flood (*Gen.* vi. 14). More ancient than the biblical account is the Babylonian Epic of Gilgamesh, where on the XIth Tablet, dealing with the 'Ark' of the Deluge legend, Uta-napishtim, the Babylonian Noah, is credited with using three words for oil products within five lines (65–69):

> Three *sar* of *ku-up-ri* (bitumen) I poured over the inside wall,
> Three *sar* of *iddu* (pitch) I poured into the inside.
> The porters brought three *sar* of *šamnu* (oil),
> Besides a *sar* of *šamnu* which the offering consumed,
> And two *sar* of *šamnu* which the boatmen hid.

Ku-up-ri was the material used as bitumen mortar in ancient buildings at Ur, Babylon, and elsewhere. *Iddu* was used to caulk boats (*quffas*) and waterproof pots. *Šamnu* was a general word for oil, either vegetable (sesame oil) or mineral. The word *šaman-iddi* was often used for the 'oil of pitch', doubtless equivalent to the Assyrian *napṭu*, the ancient Persian *nafta*, the modern Arabic *naft* (which frequently appears in Iraqi place-names generally connected with oil seepages), and the English *naphtha*. In neighbouring Elam and Persia the use of oil can also be traced back to very early times, and temples connected with Fire Worship (p. 226) were often built over places where petroleum gas escaped from the ground, thus providing a constant and inexhaustible supply of miraculous fuel.

Throughout the centuries travellers have brought back accounts of the natural seepages of oil and gas, but it was not until the present century that any systematic attempt was made in either Persia or Iraq to exploit such an obvious natural source of wealth. It was only in 1902 that the Persian Government granted to W. K. D'Arcy, an Englishman, a large concession in Persian territory—later to become the Anglo-Iranian Oil Company (A.I.O.C.)—and even then oil in commercial quantity was only struck after many disappointments.

The search for oil in the Middle East had now begun, and in June 1914 the Ottoman Government granted a concession in Iraq to a small group of British and German financiers who formed the Turkish Petroleum Company (T.P.C.), most of the shares being British. The war hindered exploration, but small shafts were installed at Qaiyara by German engineers. With the defeat of Germany and Turkey there was considerable bickering among the Allies as to who should inherit the concession, a problem complicated by uncertainty as to the political fate of the Mosul vilayet until 1926. Eventually a settlement was reached, the shares were parcelled equally between British, Dutch, American, and French groups,[1] and the company was renamed the Iraq Petroleum Company (I.P.C.).

Meanwhile exploration had begun, though it was scarcely active until 1925. As the result of surveys a number of wells east of the

[1] Anglo-Iranian Oil Company, Koninklije Shell, Cie Française des Pétroles, Standard Oil Co. (each 23·5 per cent.), with 5 per cent. allotted to the Armenian agent, Gulbenkian.

Tigris were drilled and the important field near Kirkuk was discovered. Some moderately productive wells were sunk at Qaiyara, but in 1931 the I.P.C. made a new agreement with the Government, consolidating its concession east of the Tigris and relinquishing its rights to Qaiyara and the west. It had by then acquired ample data and sufficient legal protection to enable it to finance large-scale production and the construction of pipe-lines to Haifa and Tripoli on the Mediterranean, which would deliver altogether 4 million tons of crude oil a year.

The concession west of the Tigris was sold by the Government in 1932 for a period of 75 years to the British Oil Development Company (B.O.D.C.), or Mosul Oilfields Ltd., a combine of British, French, German, and Italian interests, which prospected and drilled the scattered geological structures with little success during the following years. By 1937 the burden of financial disappointment was greater than the company could bear, partly because the oil, which had been discovered in considerable quantity, contained too high a percentage of sulphur for profitable refinement, and partly because its viscosity prevented its transport by pipe-line to the sea. As a result, the I.P.C. again took over the concession west of the Tigris and continued actively to drill for oil until the outbreak of the present war, though without marked success.

These operations in the north excluded the area of the old Basra vilayet, the concession for which was not leased until November 1938, when it was taken up by the Basra Petroleum Company (B.P.C.), formed for the purpose and associated with the I.P.C.

The I.P.C. with its associates thus undertakes all prospecting for oil in Iraq at the present time (fig. 78). The oilfield at Naft Khaneh, south of Khanaqin, developed by the Khanaqin Oil Company, a subsidiary of the A.I.O.C., is described below.

The Kirkuk Oilfield

This productive field extends from south-east to north-west along the line of the Kani Domlan hills and Avana Dagh on both sides of the Little Zab (figs. 15, 23; pp. 88, 92). The oil occurs in a thick porous and fissured limestone (Middle Eocene to Middle Miocene). Thick marls lie below, and the oil is capped by a group of red, green, and grey silts and marls with thin limestone bands and layers of anhydrite and rock salt interbedded. The structure is an elongated dome about 60 miles long and varies from 1 to 2 miles wide, sloping fairly steeply on the south-west, more gently on the north-east, and

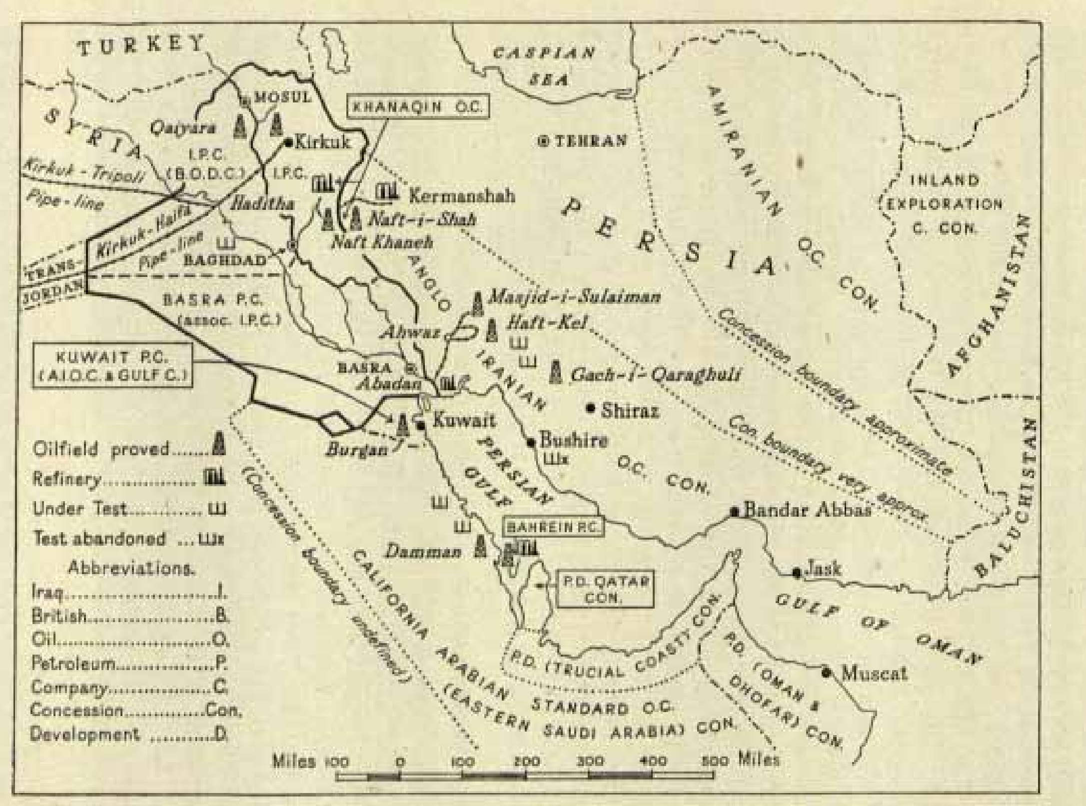


FIG. 78. *Oil concessions in Iraq and neighbouring countries, 1940*

almost level on the top. Along the axis are three slight humps: the most important at Baba Gurgur near Kirkuk, the central at Avana, and the third at Khurmala farther north-west. Oil is present for about 50 miles and gas escapes in the Khurmala dome. The burning gas seepage at Baba Gurgur is linked in local tradition with Shadrach, Meshach, and Abed-nego (*Daniel* iii. 8–30) (photo. 30).

The first well was drilled near this seepage and oil was struck in 1927. By 1939 about 70 wells had been sunk to depths varying between 1,000 and 3,500 feet, most of them perforating the flanks of the underground domes. The permeable oil-bearing rock yields abundantly from the widely spaced wells. Pressures are carefully measured so that production can be scientifically controlled. Oil is drawn from a few selected wells at a time in sufficient quantity to keep the pipe-lines to Haifa and Tripoli approximately up to their capacity of 4 million tons of oil a year. Before transmission the oil is partly purified in a special plant near Kirkuk, but refinement is carried out at the terminals. The two pipes have a diameter of 12 inches in some sections, 10 inches in others; there are 3 pumping stations (K1–K3) between Kirkuk and Haditha, 5 (H1–H5) between Haditha and Haifa, and 4 (T1–T4) between Haditha and Tripoli. None of the oil from this field is marketed in Iraq.

Naft Khaneh Oilfield

This field is the only one now in regular production besides Kirkuk. It was originally discovered by the A.I.O.C. (then the Anglo-Persian Oil Company), which held the concession from Persia before the boundary was demarcated in 1914. The field lies astride the boundary, but the Ottoman Government recognized the Company's rights within the area. In 1925/6 the Iraqi Government accorded the same rights in an agreement which provided for the formation of the Khanaqin Oil Company (K.O.C.), a subsidiary of the A.I.O.C., which should exploit the area within Iraq for a fixed royalty. That portion of the Naft Khaneh field within Persia (now known as the Naft-i-Shah field) is being developed separately by the A.I.O.C. under arrangements with the Persian Government, the oil being piped to Kermanshah.

In 1939 there were three wells in production in the Iraqi area of this field. A pipe, 30 miles long, leads from Naft Khaneh to the refinery built in 1927 at Alwand, 3 miles from Khanaqin. The oil flows by natural pressure at the wells and no pumping is required. The refinery has a monthly capacity of 3½ million gallons of crude

oil, which yields 20 per cent. petrol, 18 per cent. kerosene, and 62 per cent. fuel oil. There is ample storage capacity at the Alwand refinery and at Khanaqin railhead depot for the refined products (including aviation spirit), as well as storage for 450,000 gallons of crude oil at Alwand. About 30,000 gallons of aviation spirit are maintained in tins as a reserve at Khanaqin depot, where a tin-making plant has a maximum output of 2,000 4-gallon tins a day. There are also facilities at the depot for blending aviation spirit. The whole of the oil from this field is marketed in Iraq.

Oil in the Persian Gulf (fig. 78)

Outside the boundaries of Iraq, the A.I.O.C., which owns 23½ per cent. of the capital of the I.P.C., works all the oilfields at present known on the Persian side of the gulf, and owns the oil concession for all land likely to yield oil in this area. On the Arabian side the search is as keen as in Iraq. The Kuwait Oil Company, formed by the A.I.O.C. and the Gulf Corporation in 1934, struck oil at Burgan in 1938, and there are good prospects for the future (p. 147). Farther down the coast the California Arabian Standard Oil Company with its associates and subsidiaries holds most of the concessions, with fields in production on Bahrein island (p. 144) and at Damman (Jabal Dhahran) near Qatif on the mainland to the west (p. 142). A field on the Qatar peninsula has been drilled (p. 140), and two others are being drilled between Qatif and Kuwait, one at Abu Hadriya, the other at Maagala, both inland from the coast and distant about 100 and 120 miles from Qatif. The rest of the coast is being explored.

Crude oil produced by the A.I.O.C., mostly in the Masjid-i-Sulaiman and Haft-Kel oilfields, is piped through Ahwaz to the great oil refineries at Abadan, on the Persian side of the Shatt al Arab (photo. 67). The only refinery on the Arabian side of the gulf in 1940 was on Bahrein island. Details of war-time developments and projects are not yet available for publication.

Rafidain Oil Company (*R.O.C.*)

In May 1932 the K.O.C., in co-operation with the I.P.C., transferred the marketing of all oil products in Iraq to a new concern, the Rafidain Oil Company. The R.O.C. not only markets the products of the K.O.C., mostly in the Baghdad area and northern Iraq, but distributes imports purchased from the A.I.O.C.'s refinery at Abadan, mostly in the south.

The amount of oil and oil products issued from the Khanaqin oil

depot in the 5-year period ending 1939/40 was as follows (in thousand gallons):

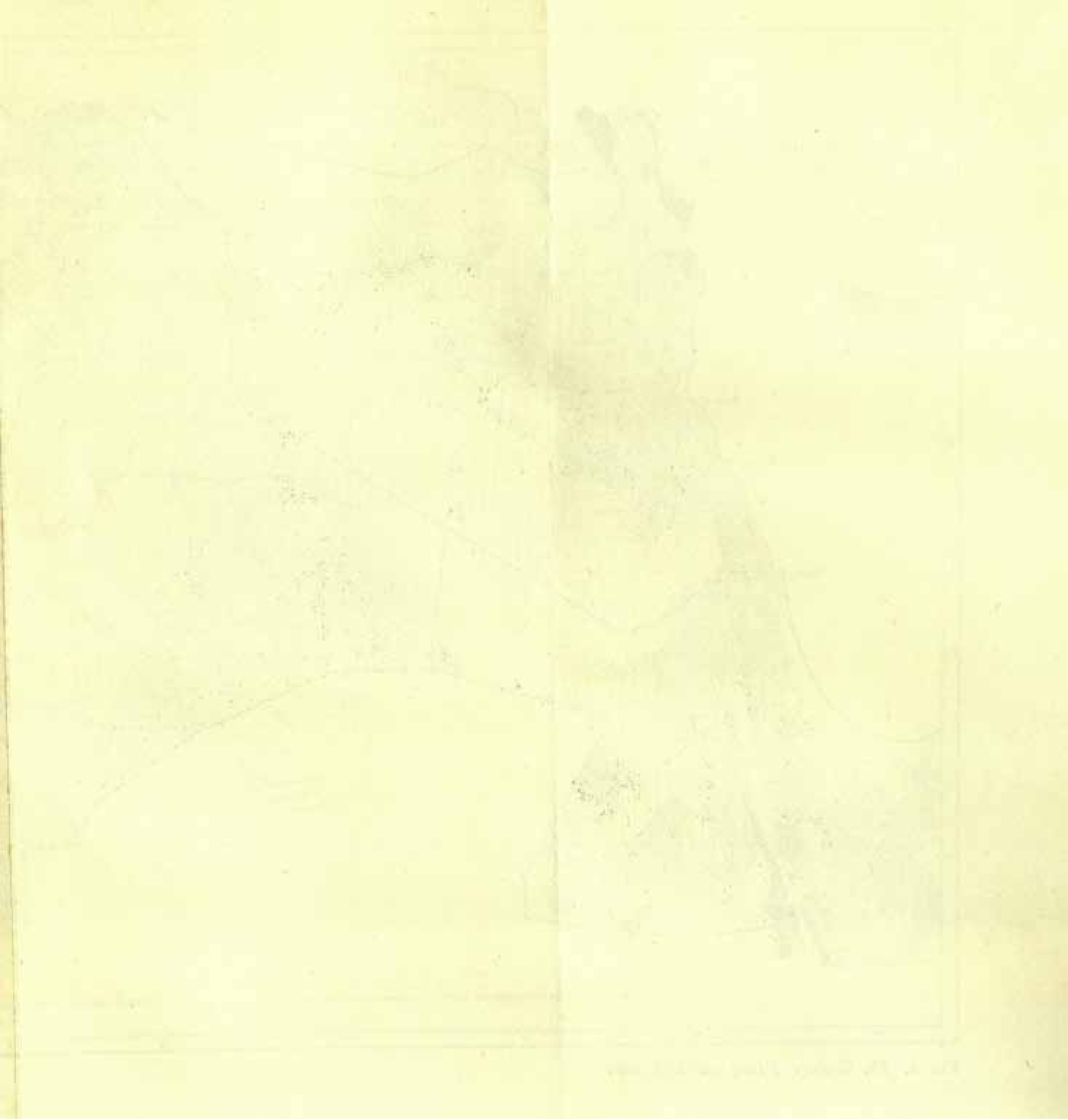
Year	*Petrol*	*Aviation spirit*	*Kerosene*	*Fuel oil*
1935/6	4,162	49	4,331	14,559
1936/7	5,108	37	5,124	15,421
1937/8	6,258	48	5,271	17,629
1938/9	6,777	21	6,687	18,125
1939/40	7,583	12	7,787	20,417

Oil Royalties and Finance

A very important source of revenue to Iraq is derived from the royalties paid by the oil companies. By the agreement made with the Iraq Petroleum Company on 24 March 1931, an annual rent of £200,000 (gold) is payable together with a royalty at the rate of 4*s*. a ton on a minimum production of 2 million tons of crude oil a year for the first 20 years. A first payment of £400,000 was made in May 1931, but by the time the second payment fell due, on 1 January 1932, Britain had left the gold standard. The difference between payment in gold and sterling amounted to £169,000 sterling.

A rather similar agreement was made in 1932 with the B.O.D.C., which undertook to pay an annual rent rising from £100,000 (gold) in 1933 to £200,000 in 1937, plus a royalty of 4*s*. a ton for 20 years after the commencement of regular export, with a minimum total of £200,000 and one-fifth of the oil extracted to be given free of cost to the Iraqi Government. A similar royalty at the rate of 4*s*. a ton is paid by the Khanaqin Oil Company, but the minimum total is lower and the total payable is considerably less than that paid by the I.P.C.

The sum received from oil royalties annually from 1934/5 to 1939/40 is shown in the figures for the Special Budget on page 483. In 1939/40 it amounted to over 2 million dinars.



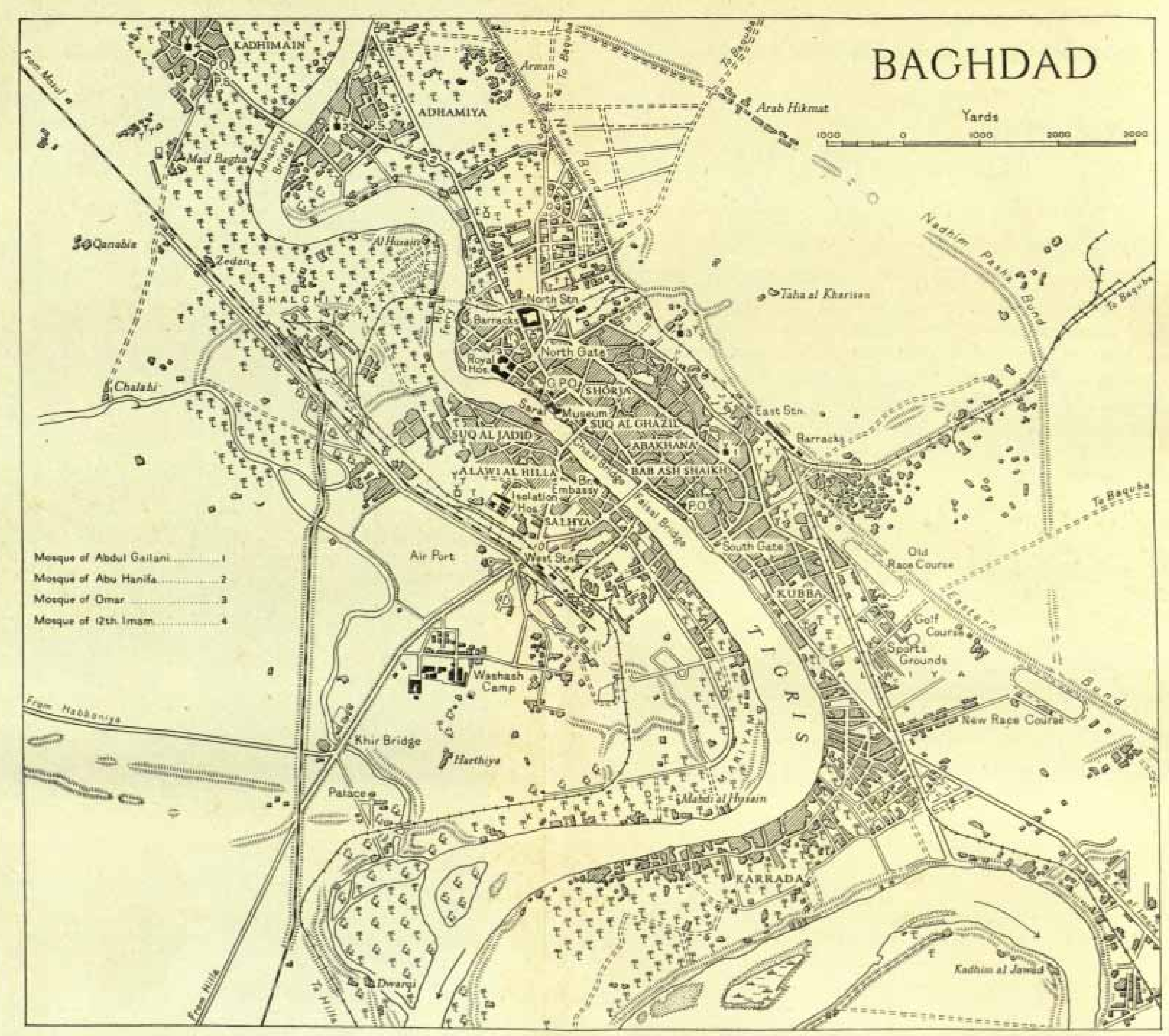


FIG. 79. *Plan of Baghdad*

CHAPTER XII

PORTS AND INLAND TOWNS

THERE are only three cities in Iraq which are of any size by European standards. These are the capital Baghdad with a population of about 300,000, Mosul, sometimes called the capital of the north, and the group of small towns collectively known as Basra, which is the sole port. These three are described in some detail in alphabetical order. The Gazetteer which follows contains briefer descriptions of the small country towns, 'holy cities', and places of administrative or economic importance, throughout the country, some of them being large villages rather than towns (p. 356). All information about numbers of inhabitants is extremely uncertain, and depends upon estimates made by local officials at different dates during the last ten years; it is intended simply as a general guide to comparative sizes. Material for the compilation of town plans is extremely inadequate except for BAGHDAD; hence these have been limited to BAGHDAD, MOSUL, ERBIL, KARBALA, and the port of BASRA.

BAGHDAD. 33° 20′ N., 44° 25′ E.; alt. *c.* 110 feet. Pop. 300,000 (est. 1940). National and Liwa cap. King's Palace. Meteorological Station (R.I.A.F.). H.Q. Southern Command.

Baghdad (fig. 79) lies in level plains of the upper delta on both banks of the Tigris above the confluence of the Diyala, at the point where the land routes from Syria and Persia converge on the waterway from Mosul to the Persian Gulf. It is the centre of a district which has been heavily cultivated by irrigation in the past and is now again coming under the plough. The main city, on the east bank, is very liable to flooding, particularly in the east and north, where it is protected by a double line of great banks (new East bund and Nadhim Pasha bund). The west-bank city, Karkh, lies between the river and the Aqarquf marshes and is protected from flooding by smaller works and by the railway embankment.

The Moslem inhabitants are about equally divided between Shia and Sunni. There are large Jewish and Christian elements and numerous minor groups of Kurds, Persians, and Indians.

History

Nothing is known for certain of any settlement of importance on the site of Baghdad until the Abbasid Caliph Mansur built a new

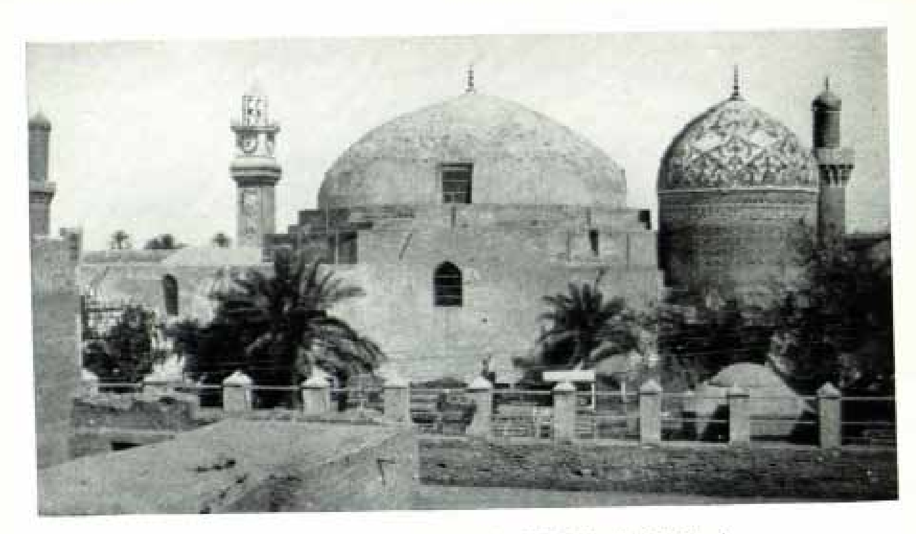
capital on the right bank of the Tigris between modern Karkh and Kadhimain (A.D. 762–766). This 'Round City', known as Dar as Salam, 'Abode of Peace', consisted of three concentric zones separated by walls and crossed by four roads which radiated from the Caliph's palace at the centre. But it soon spread far beyond its outermost walls with prosperous market suburbs, including Adhamiya on the east bank. The secession of the caliphal court to Samarra (836–892) was a temporary check, and the full growth of the city on the east bank dates from the return of the Caliphs, when Mutamid moved his court there. As the Round City decayed the main town grew up on its present site, and at its greatest extent in late Abbasid times must have covered the same area as the core of the present city, because the walls built by Caliph Mustadhir (A.D. 1095) followed the same line on the east as the later Ottoman fortifications. Baghdad suffered greatly in the Mongol invasions which eclipsed the Caliphate (p. 254), particularly from the sack by Hulagu Khan (1258) and by Tamerlane (1401). Very few Abbasid buildings survived this destruction, and later rebuilding removed most of these. The fortifications were first restored in 1405 and later greatly amplified. The Englishman Ralph Fitch found Baghdad in 1583 'a town not very great but populous and of great traffic of strangers, for that is the way to Persia, Turkey, and Arabia'. East Baghdad and Karkh were already connected by a bridge of boats 'tyed to a great chain of iron'. Thus trade maintained the city when it was not a great political capital.

From 1508 to 1534 Baghdad was under Persian control and many of the surviving Sunni mosques and colleges were destroyed. When Sultan Suleiman I drove the Persians out in 1534 (p. 256) he restored many shrines. Thenceforth Baghdad was the capital of the senior pashalik or ayalat of Ottoman Iraq. It suffered from later sieges in the continual warfare between Turkey and Persia, and particularly from the Persian occupation of 1623–1638. This occupation popularized the Persian architectural style in Baghdad and Iraq. Sultan Murad IV recovered the city in 1638 and was the last Ottoman Sultan to visit it. The Gate of the Talisman, bricked up behind him, remained unused for three centuries. A succession of Turkish Pashas enriched and improved the shrines of Baghdad, which became again the virtual capital of northern and southern Iraq under the Mamluk Pashas (1704–1831, p. 259) (photo 129). The last of these, Daud Pasha, built several new mosques and also the triple-arched bazaar still in use. Many of the finest old houses date from this epoch, but in April 1831 the city suffered from a flood which destroyed 7,000



186. *Baghdad from the Sarai*

187. *Baghdad from the air before the cutting of Ghazi Street*



188. *Baghdad. Mosque of Abdul Qadir Gailani*

189. *Baghdad. The little mosque of Shaikh Omar and the Bab al Wastani, since restored*

houses, and from a visitation of plague. This killed 40,000 inhabitants and is partly responsible for the poverty in fine arts of the Baghdad bazaars; many crafts vanished with the hands which practised them, and the treasures of the Sarai were destroyed in a great fire.

The prosperity of Baghdad was restored largely by the opening of the Tigris to steam navigation after 1836 (p. 264). Between 1860 and 1914 Baghdad, the capital of a vilayet (p. 265), underwent a superficial modernization inspired by two energetic valis, the pashas Namiq (1861–1868) and Midhat (1869–1872). The city walls were destroyed, though the rubble was not removed. The electric telegraph, a newspaper, military factories, a hospital, almshouse, orphanage, and several schools were created and three municipal councils established.

Nadhim Pasha (1911–1912) built the two embankments (bunds) of east Baghdad, and opened it to wheeled traffic by driving a carriage road from the South Gate to the bazaars. This was broadened and extended to the North Gate by Khalil Pasha in 1915–1916. In 1917 Baghdad was occupied by British forces, and during and after the mandatory period (1920–1932) its growth and improvement have been continuous. The population has increased rapidly by migration from the countryside, and new and more open suburbs have sprung up north and east of the old town, with many spacious buildings for the utilities and administration of a modern capital. The schools and hospitals, railway establishments and airport are the most remarkable creations of the inter-war period. A second thoroughfare has been driven through east Baghdad, and the former two boat-bridges have been replaced by permanent steel structures (photo. 191).

Description of Town

Pattern of Streets. Baghdad is a monotonous and amorphous city with few well-defined or characteristic quarters, and its interesting buildings are not easily discovered. In the better residential districts houses are generally built of soft yellow burnt brick two or three stories high, but in poorer parts many are little better than mud huts of a single story. There are few ancient mosques or other Abbasid relics, but many pleasant blue-domed buildings dating back to the middle Ottoman period.

The core of the old town lies on the east bank of the Tigris between the North Gate and the South Gate (Bab ash Sharqi) within the line of the former city wall. Across the river, which is crossed by the

Faisal and Ghazi bridges, is the old Karkh quarter, much smaller than east Baghdad. On the east bank new suburbs stretch south for 3 miles to Karrada and north for 2 miles to Adhamiya (Muadham), originally a distinct settlement and still separated from the city by gardens mingled with villas. The Shia city of Kadhimain on the west bank opposite Adhamiya is reached by a bridge of boats (p. 535).

The old town forms a rectangle about 2 miles long and 1 mile broad between the two gates and between the Tigris and the inner bund, though even to-day it is not entirely built up on the eastern side. It contains a mass of narrow lanes pierced by two broad streets from north-west to south-east: Sharia al Rashid (Rashid St., former New St.), which links the two gates, and Sharia al Ghazi (King Ghazi St.) on the east side of the town. The latter, which has two piazzas along its course, swings round at the south-east to join Rashid St. near the South Gate. A third and shorter thoroughfare runs parallel to Rashid St. close to the waterfront between the two bridges. Two narrower transverse thoroughfares cross the town from south-west to north-east: Bab ash Shaikh road leading from Rashid St. (300 yards below Faisal bridge) past Abdul Qadir Gailani mosque, across Ghazi St. eventually to the East Station, and a road leading from Ghazi bridge through Shorja district to Ghazi St. Otherwise the alleys and lanes are seldom passable, at best, by more than a single car. The suburbs outside the two gates have been planned more regularly with broader streets, and building development still mingles with gardens.

Karkh on the west bank consists of another mass of alleys, more difficult to penetrate because the blocks and enclosures are larger, but crossed by two thoroughfares converging from the two bridges upon the West Station. Between Karkh and the railway yards farther west is a region of scattered and spacious buildings, and to the north there is a factory area.

Quarters. The main administrative and commercial quarters are on the east bank. Rashid St. is the long and ugly axis of the business establishments, modern shops and hotels. The larger banks are in Bank St., a short road leading from the Customs Wharf through to Rashid St. Most government and public buildings are on or close to the river bank above and below Ghazi bridge, the principal being the Customs House in an Abbasid building below the bridge and the Law Courts and Sarai above it, the Army Headquarters in the old Turkish Citadel by the North Gate, and the Royal Hospital outside the North Gate. The bazaars or *suqs*, both covered and open (photo. 190), are mostly between Ghazi bridge and Rashid St. and in



190. *A tinsmith's shop in a Baghdad bazaar*

191. *The new Faisal bridge at Baghdad*

192. *Ashar and Ashar creek leading to Basra city, seen from the air across the Shatt al Arab*

193. *Ashar creek and Ashar town*

the Shorja and Suq al Ghazil quarters, their focal point being the Merjaniya mosque on Rashid St. The bazaar of the booksellers off Bank St. is the most interesting.

Karkh is mainly a residential area, though it also contains the central offices of the Railway Administration, the British Embassy, and the Houses of Parliament on the river bank above Ghazi bridge, housed in the buildings intended for the Ahl al Bait University. Its local bazaar is in the Suq al Jadid quarter. The new Royal Palace is south-west of Karkh near the airport (photos. 134, 135).

Other residential districts are the northern and southern suburbs on the east bank, Alwiya with its garden bungalows being favoured by *effendis* (p. 349). Jews live mostly in Shorja, which has schools and synagogues, and Christians in Suq al Ghazil with its uninteresting churches and convents of French orders.

Factories and workshops are generally very small and are scattered throughout the area, except for a few larger establishments grouped north-west of Karkh. The main railway area is west of Karkh, between the West Station and the repair shops in Shalchiya suburb. Another railway area is on the east bank round the North Station outside the old town. North and West Stations are connected by railway ferry.

Shrines and Monuments. The few Abbasid buildings include the tall minaret of the Suq al Ghazil, built by Caliph Mustansir in 1236, the Customs House, originally a madrasa or college built by the same Caliph, the twelfth-century Khan al Ortma in the bazaars near Bank St., and the shapeless remains of Caliph Mamun's palace within the Turkish Citadel. The principal Sunni shrines of Abdul Qadir Gailani on Bab ash Shaikh road (photo. 188), and of Abu Hanifa in Adhamiya, have been much rebuilt, but the latter is small and charming, with a madrasa attached. The Merjaniya or Coral Mosque on Rashid St., with its fine and recently restored khan, dates from the fourteenth century. The small unpretentious mosque and tomb of Shaikh Omar near the restored Bab al Wastani is one of several minor local shrines (photo. 189), such as the reputed tomb of Zubaida, a wife of Harun ar Rashid, and the tomb of the Sufi mystic Hallaj (p. 252), which are both outside Karkh. The city wall can be traced, but even its gates are now names like the North and South Gate or ruins such as the Bab al Talism. The Bab al Wastani, however, houses a collection of weapons. The principal museums are the new Iraqi Museum, with a fine collection of pre-Moslem antiquities, and the museum of Islamic art in the Khan Merjaniya.

City Life

Baghdad is essentially a commercial and political capital. Most of the inhabitants are supported directly or indirectly by these and allied forms of activity. There is also a large class of absentee landowners, some being men of wealth. Industry is only beginning to intrude. The commerce of Iraq centres in Baghdad, and businesses are on every scale from the large firms with modern offices on Bank St. and Rashid St. to the small retailers of the extensive bazaars. Many merchants still retain the habit of disguising their wealth by conducting affairs from a single room in a back street. The largest wholesale firms are British and Italian, but commerce is generally dominated by the numerous Jewish and Armenian merchants, with whom Arabs find it hard to cope, though these predominate in the smaller bazaars. The Christian communities provide many of the best clerks and managers.

Educated Iraqis are occupied in administration and politics and the allied callings of journalism and law, and also in medicine and teaching. Baghdad contains the national institutes of these professions, which are attended by numerous students.

Baghdad is less of a religious centre than the Shia cities, though the shrines of Abdul Gailani and Abu Hanifa draw Sunni pilgrims to their tombs and theological students to their madrasas. Many Shia pilgrims bound for Kadhimain lodge in the khans of Adhamiya.

Baghdad is the centre of such modern industries as exist in Iraq, described on p. 472 ff., of which the railway establishments are the most considerable. There are a host of minor trades and crafts pursued by individual artisans, important only in the aggregate, and there are many small concerns ancillary to the city's life. Only three or four garages are capable of major repairs. The best products of the bazaar workshops are hand-made abas and izars of brocaded silk (p. 345–6), and the work of the gold- and silversmiths.

There are 13 hospitals, of which the chief are the Royal (625 beds), the Isolation (250 beds), the Karkh (195 beds), the Mar Elias (142 beds), the Children's (89 beds), and the Eye Diseases (21 beds).

Supplies

The food-supply is brought in daily by rail, road, and river from the country districts. Numerous native bakeries produce indifferent bread, and European tinned and bottled foods and drinks are obtainable from British and Indian stores. Wood fuel is rafted down the Tigris and stocked in the bazaars. The Rafidain Oil

Company monopolizes the wholesale supply of petrol, paraffin, and fuel oil, which are distributed by garages and shops.

Electric light and power (400–200 volts D.C.) are supplied by a power house about 400 yards north of the Royal Hospital with a subsidiary station in Abakhana district.

Water is pumped from the Tigris by three pumping stations with sedimentation or filtration plant at Alwiya, Kadhimain, and Karrada, and distributed by underground mains.

Communications

Water. For the navigation of the Tigris, *see* p. 559. Service to Basra is provided mainly by the Euphrates and Tigris Steam Navigation Company, and to Mosul by native-owned steamers during flood season. The Sultan Ali wharf is on the left bank below Faisal bridge, the Customs wharf below Ghazi bridge, the Rafidain oil wharf near the South Gate. The Railway wharf is on the right bank below Faisal bridge.

Rail. Standard gauge from Baghdad West to Mosul and Nusaybin (Rly. 4), thence to Aleppo and the Bosporus; also south to Hindiya (Rly. 5). Metre gauge south from Baghdad West to Diwaniya and Basra (Rly. 1), with branches to Karbala and Nasiriya. Metre gauge from Baghdad East to Kirkuk (Rly. 2) with branches to Hinaidi, Kut al Imara, and Khanaqin. The rail-ferry between the West and East stations is for goods only; passengers cross by road bridges.

Road. Mainly earth-surfaced road [5] north by Tikrit to Mosul. Tarmac or gravel road [6] north by Diltawa to Kirkuk, Erbil, and Mosul. Tarmac road [7] north-east to Baquba, Shahraban, and Khanaqin, thence to Kermanshah. Unmetalled road [1] south-east along the Tigris to Kut al Imara, Amara, and Basra. Road [2] (tarmac for 28 miles and then unmetalled) south to Hilla, Diwaniya, Samawa, and Basra. Tarmac road [15] west to Falluja, thence tarmac to Rutba and Haifa [15] and unmetalled to Al Qaim [4]. Ancient horse tramway from Karkh to Kadhimain.

Air. The civil airport, west of Karkh and the railway yards, has concrete runways, direction-finder, night-landing apparatus, and a neon beacon. The R.I.A.F. airfield is at Hinaidi.

BASRA. 33° 20′ N., 44° 25′ E.; alt. *c.* 7 feet. Pop. 80,000 (est. 1940). Liwa cap.

Basra, the port of Iraq, on the right bank of the Shatt al Arab, 70 miles by river above Fao, is an agglomeration of three towns and

several large villages (fig. 80): Basra City, which lies 2 miles from the main river on the Ashar creek; Ashar, which fronts the main river on both sides of the Ashar creek and stretches north beyond the

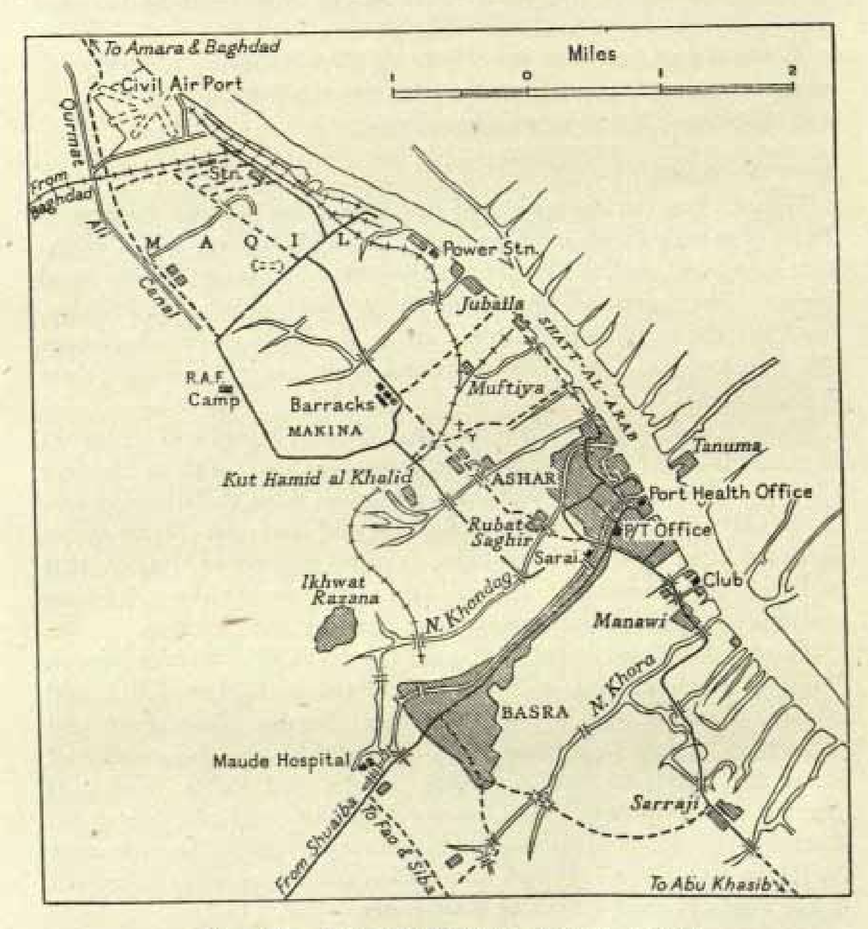


FIG. 80. *Diagram of Basra and surroundings*

Khandaq creek; the modern port of Maqil, 4 miles above the mouth of the Ashar creek. The villages include Jubaila, on the river front between Maqil and Ashar; Manawi, downstream of Ashar; and Rubat Saghir, on the Khandaq creek above Ashar. All these are surrounded by palm plantations, intersected by numerous irrigation channels

and minor creeks, which are part of the palm belt of the Shatt al Arab. The river is here about 300–400 yards wide and the palm belt from 2 to 3 miles. The population is extremely mixed but preponderantly Arab, both Sunni and Shia, with large colonies of Persians and Jews, and some Indians. The climate (p. 172) is particularly difficult for Europeans.

History

Sea trade from the Shatt al Arab to India was first established in the time of Alexander the Great (p. 227). The earliest known settlement near modern Basra was the Graeco-Parthian trading station of Apologos (*Arabic* Ubulla), but Basra itself was founded in A.D. 638 by the Moslem conquerors (p. 241), 9 miles inland from the Shatt al Arab on the desert verge, near the present town of Zubair. The estuary was reached by two canals, north-east by the Nahr Maqil and south-east by the Nahr al Ubulla. Basra soon became a great city, port, and market town, famous for its mosques, public library and copying house, and the centre of a rich agricultural zone, watered by canals from the Shatt al Arab and far wider than the present strip of riverain cultivation. At its greatest the city measured more than 3 miles square, but some districts were destroyed when it was sacked by the Zanj rebels (p. 244) in A.D. 871 and by the Carmathians (p. 253) in 923. Some of its prosperity survived the first Mongol invasions, but by the fourteenth century its finest mosque was 2 miles from the inhabited centre. Later, old Basra dwindled away and even its out-port of Ubulla declined from a flourishing town to a large village, to which the name of Basra was transferred. In 1583 Ralph Fitch found this a small but active port of some 10,000 houses, enclosed by mud walls, 'a town of great trade of spices and drugs which come from Ormuz. Also there is great store of wheat, rice and dates growing thereabouts wherewith they serve Babylon and all the country, Ormuz and all the parts of India.' Under the Turks Basra gained the standing of a provincial capital, but from 1600 to 1668 direct Ottoman rule was ousted by the local Afrasiyab dynasty. They encouraged arts and learning, dispensed justice, kept Basra secure from Persian invasion, and enriched the city by welcoming British, Portuguese, and Dutch traders (p. 263). There was also trade up the Tigris 'with great trouble and expense' to Baghdad, Mosul, and Diyarbekir and across the desert with the Levantine cities and Egypt. Capitulations, first signed at Istanbul in 1661, permitted British trading establishments at Basra (p. 264).

Between 1694 and 1697 Basra was controlled by Mani, the paramount shaikh of the Muntafiq confederation, which henceforth was perpetually blockading the town and cutting the dikes. But generally Basra was firmly held by governors appointed by the Mamluk Pashas of Baghdad (p. 259). Between 1720 and 1752 the British East India Company established itself and the Dutch merchants were ousted; Italian and French merchants followed on the heels of the British. A visitation of plague in 1773 was followed by a Persian invasion in 1774, but it needed a two years' blockade to secure the surrender of the city; the Company's agents and vessels retired to the protection of H.M. ships at Bushire, on one of which Nelson was then serving as a midshipman. Under continual pressure from the hostile Muntafiq, then the protectors of Basra, the Persians retired in 1779. Mamluk rule was restored and the Company's agents returned.

In the nineteenth century Basra, under regular Ottoman rule, prospered from the development of steam navigation by Lynch Brothers on the Tigris. No quays yet existed for ocean steamers, ships being unloaded in midstream, but by 1914 the vessels of ten companies, mostly Indian and British, called regularly, and the port had a total trade worth about £6,000,000 a year.

The construction of the modern port was undertaken by the British Army after the occupation of Basra in 1914, when it became the supply base of all the British forces in Iraq. The site selected for the main wharves was at Maqil, 4 miles above Ashar, where there was deep water close to the bank. A low-lying area intersected by creeks and irrigation ditches was raised above flood-level, a continuous series of wharves, 3,000 feet long, with modern cranage, was built above Maqil village, backed by a transit area and railway yards linked to the Basra–Baghdad railway. In April 1920 this new port was opened for use as a commercial establishment, its new status depending upon the Port of Basra Proclamation 1919 (Provisional), since incorporated in the laws of Iraq. In 1921 the Basra Port Directorate, still in British ownership, was placed under the control of the new Iraqi Government and administered by the Ministry of Finance. By the Anglo-Iraqi Treaty of 1930 a financially autonomous Port Trust was to be set up, to which the property of the Port of Basra was to be transferred. The price paid by the Iraqi Government was the nominal sum of £540,874. It is administered by a British Port Director and a Director General of Navigation.

The port, having been built without much regard for costs, required considerable adaptation before it could be economically worked as a

194. *A creek in Basra city*

195. *Basra city from the air in 1919*

196. *Maqil. The main wharves*

197. *Maqil. General view from the air, showing wharves and headquarters of the Port Authority*

commercial port. Much unnecessary equipment was discarded and storage sheds and warehouses were built, which had not been required by the Army. The whole transit area was walled in with a steel fence, thus greatly reducing the size and cost of the police staff required. The principal advance made between 1918 and 1939 was the dredging of the Rooka channel through the outer bar of the Shatt al Arab, first to a depth of 28 feet and later to 30 feet. Hitherto the larger vessels had been compelled to discharge part of their cargo 50 or 100 miles out at sea. This work was done and is maintained by specially constructed suction dredgers. Finally a modern airport and flying-boat station was built on vacant land belonging to the Port Directorate and completed in 1936.

In the present war Basra has again become the main port of supply first for British and Allied forces in the Levantine States, Iraq, and Persia, and then for supplies to Turkey and above all to Russia. This again led to an expansion of the facilities at Basra and to the creation of new wharfage opposite Ashar at Tanuma and at Umm Qasr on the Khor Zubair. But there is little doubt that after the war facilities will be again reduced to the 1939 establishment of Basra, which was fully adequate for the normal trade of the Shatt al Arab.

Description of Town (photos. 192–195).

The twin towns of Ashar and Basra City are connected by a strip of houses along the right or south-east bank of Ashar creek. Basra City, roughly an equilateral triangle with sides 1 mile long, its base on the Ashar creek and its apex to the south, is the oldest quarter and the main residential area of the Arab population, though some of the long-established local firms still keep their offices in it. Though some streets are macadamized and a few have been widened to enable two cars to pass, they are generally narrow and unsuitable for motor traffic. The houses vary from burnt brick buildings round courtyards to mud huts and even reed huts in the poorest parts. Ashar, a rectangle about 1 mile long on its river frontage and half a mile broad, is the modern commercial quarter. The main thoroughfares are broader than in Basra City, and there are many good modern buildings, mostly on the right bank of Ashar creek, such as the principal banks, commercial houses, and the G.P.O. and, on the left bank, the new Sarai. Others, such as the Port Health Office, the British Club, and the British Consulate, are near the waterfront below Ashar creek. Four road bridges across the Ashar creek connect

north and south Ashar. Numerous foot-bridges cross the smaller creeks which intersect the town. The primary and secondary schools are in Ashar.

Maqil town consists of the residential quarter south-west of the port and railway area of Maqil, and of the Arab village on the waterfront. The road plan was laid out in the War of 1914–1918 and consists of four or five broad avenues running west from King Faisal road which bounds the port area to the parallel Sutton road. To the south is the zone known as Makina. The Basra passenger railway station is on the northern outskirts of Maqil, and the Civil Airport is north of the railway station. The R.A.F. cantonment is on the river bank below the port. There are many European bungalows standing in gardens.

The suburb or village of Jubaila, facing the Shatt al Arab astride the Jubaila creek below Maqil, is a huddle of mud houses and reed huts; 'Jubaila' barracks is a mile to the south-west in Makina. Manawi village is a similar cluster north of the Khora creek below Ashar; Rubat Saghir is an inland suburb on the Khandaq creek west of Ashar. Ikhwat Razana is a larger village half a mile north-west of Basra City.

There is no sewage system in the area, though most of the better houses have cesspits. *Water* is provided by pumping stations from the Shatt al Arab, cleansed by chlorination and sedimentation. The main plant at Jubaila supplies both the port and the towns of Ashar and Basra. The R.A.F. cantonment at Maqil has its own pumping station and supply. *Electricity* for light and power are supplied by a modern power station at Jubaila (440 and 220 volts D.C., 400 A.C.); there is electric street lighting in the main streets of all the towns and many villages of the Basra area.

Hospitals include the well-equipped Maude Memorial Hospital (251 beds) and the Isolation Hospital (150 beds) on the south-western fringe of Basra City, an Eye Hospital (28 beds), and a V.D. hospital for women (25 beds).

Commerce and Industry

The greater part of the local population is maintained directly or indirectly by commerce and the activities of the port, and by the date-packing industry. The packing and shipment of dates absorbs all available labour at harvest time, when there is also a great influx of tribesmen as casual labour. The bulk of the country's export and import trade is handled by Basra (p. 490). This trade was principally

with Great Britain, U.S.A., India, Japan, and the Dutch East Indies, in that order, up to 1940.

Local industries, apart from the engineering works attached to the port and railway, are confined to the ancillary crafts necessary for urban life; blacksmiths, metal-workers, boat-builders, carpenters, masons, and bricklayers are numerous, though their standards are low. There are numerous bakeries, four principal ice factories producing 27 tons a day, and at least 16 small soda-water factories apart from the port and R.A.F. plants.

Port of Basra

The Port of Basra Authority extends along the Shatt al Arab for 90 miles from its mouth as far as Nahr Umr, 20 miles above Maqil, its chief centre. Maqil can be approached by any ship capable of using the dredged channels up the Shatt al Arab: the present limits (1943) are a draught of 30 feet and a length of 600 feet, but for the best working results the draught should not exceed 25 feet and the length should be between 400 and 500 feet. The main wharves have 25 feet of water alongside at low water. There are ten berths for vessels drawing between 23 and 26 feet, and numerous moorings in mid-stream. There is a subsidiary lighter basin opposite Ashar at Tanuma.

Shipping and Commerce

The port is used by ocean steamers, sea-going native sailing-craft, and inland-water craft. The number of steamers which entered the Shatt al Arab in 1938/9 was 1,220, but the majority were oil tankers loading at Abadan: only 272 docked in the actual port of Basra, and 948 entered Abadan and Khorramshahr (Persia). In 1938/9, 6,630 sea-going native craft entered the Shatt al Arab, of which 2,568 were bound for Iraq and 4,062 for Persia.

The imports through the port of Basra for 1938/9 totalled 354,467 tons, of which 21,708 tons were carried by sea-going native craft. The exports for the same year were 455,002 tons, of which 58,967 tons were carried by sea-going native craft. The principal exports are grain and dates; wool, hides, liquorice-root, and cotton are subsidiary. Imports include building materials, timber, cement, machinery, piece goods, tea, and sugar.

Basra is also an important port for passengers, including tourists and pilgrims. In 1938, 10,524 passengers disembarked and 8,946 sailed.

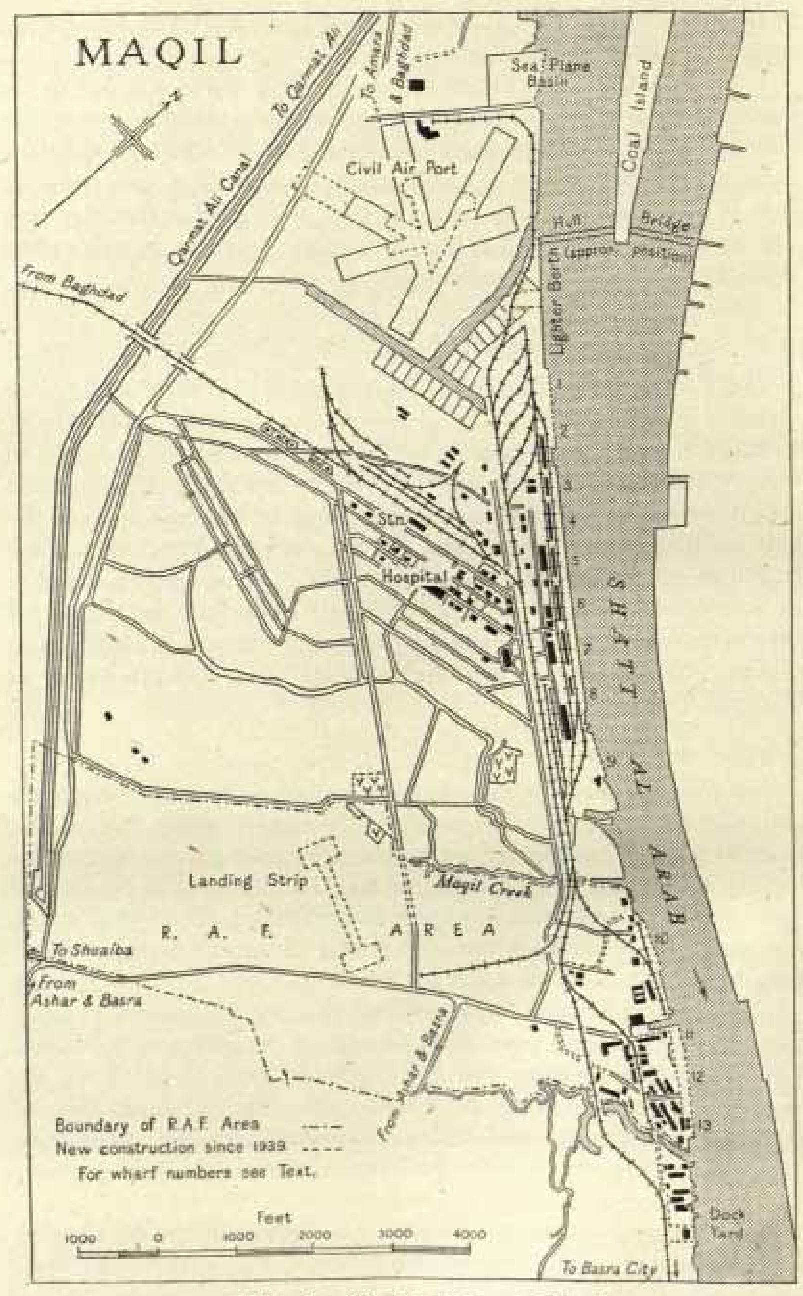


FIG. 81. *The Port Area of Maqil*

General Description (figs. 80, 81; photos. 196–199)

The Maqil port area covers more than 1,500 acres. The main wharves (berths 3 to 8) have a continuous frontage of 3,000 feet and a minimum depth of 25 feet; they are served by three lines of railway sidings. Adjacent and parallel to the main wharves is the 30-acre transit area, enclosed by a steel fence and containing transit sheds and warehouses served by two lines of railway sidings. Upstream of the main wharves is the port grain sief area of 42 acres, which has separate wharves and sidings. Downstream of the main wharves near Jubaila is the R.A.F. area, with four wharves. There are also three oil jetties at Muftiya, downstream of Jubaila, and numerous native craft jetties (including Viceroy's Pier) at Ashar.

Recent war development has included the provision of a lighter berth upstream of the grain sief area, the dredging of the grain wharves to give two deep-water berths, the construction of a new deep-water berth immediately downstream of the main wharves, replacing native jetties, and the deepening of the R.A.F. berths. Thus there are now 11 deep-water berths: 2 at the grain sief, 6 at the main wharves, 1 downstream of the main wharves, and 2 in the R.A.F. area. Before 1940 the only deep-water berths were the six at the main wharves.

The railway marshalling yards and goods station are alongside the transit area, and the passenger station a short distance behind it. There is a modern airport north-west of the grain siefs, comprising an all-weather landing-field, a seaplane basin, and an adjacent stretch of the Shatt al Arab suitable for flying-boats.

The modern Port Headquarters building overlooks the transit area. The port and railway staff quarters and recreation grounds extend a mile inland.

On either side of Maqil are two areas suitable for depots. The Qarmat Ali area, north-west of the airport, has been raised, levelled, and cambered. The Makina area, south of the R.A.F. area, has salt-impregnated soil and is liable to become a quagmire in wet weather. Coal Island, in mid-stream opposite the airport, would make a suitable coal and wood depot of 30 acres.

Detailed Description

Wharves. No reliable plan is available for the latest construction, but the following list represents the maximum development in 1944. Wharves are built of teak.

Number on plan	Name	Length in feet	Minimum depth of water in feet	Berths	Details
..	Lighter Berth	1,000	4	..	Shed. Light cranes.
1–2	Grain Wharves	1,000	23–24	2	No shed. Light cranes. 2 warehouses adjacent.
3–8	Main Wharves	3,000 (490–525 each)	25	6	Sheds and warehouses. Light cranes.
9	New wharf	500	25	1	Warehouse. Light cranes.
10	R.A.F. No. 7	550	26	1	No shed. Light cranes.
..	Ammunition Wharf	400	4	..	? below R.A.F. No. 7. No shed.
11	New wharves	650	18	1	250 ft. of deep water only. No cranes. No shed.
12	..	400	30	1	Heavy crane. No quay facilities.
13	..	315	17	1	Personnel landing only.

Sheds and Warehouses. The Main Wharves are backed by a line of six large open sheds, and a seventh shed has been moved from the Main Wharves to the Lighter Berth. Five of the sheds are Brady sheds averaging 490×75 feet; two are smaller. Their total area is about 228,000 sq. feet. Behind the sheds there are nine warehouses for bonded goods, &c. These vary in size from 110×35 feet to 400×80 feet, and their total area is about 157,000 sq. feet.

The 1939 grain storage capacity in the 30–40 open plots of the grain sief was 200,000 tons.

Cranage. The 1939 establishment consisted of 15 electric travelling cranes of 1½–8 tons capacity on the main wharves and 3 steam cranes and 1 hand crane of 5 tons in the transit area. Since then cranage has increased. Light cranes of 1½–2, 3, 5, and 8 tons predominate, and there were 27 of these distributed along the deep and intermediate depth quays in 1944, of which only 2 were 8-ton cranes. The lighter berth had 7 light cranes and one 15-ton crane in 1944. The only heavy crane on a quay was the 60-ton crane at No. 12 berth. There was a 75-ton derrick in the Marine Dockyard. In 1939 there was a floating crane of 30 tons.

Grain was man-handled; 2,000 tons could be landed in 24 hours at each berth in 1939.

Workshops and Power Station. The port engineering workshop is downstream of the R.A.F. area. It has no docking facilities, but can repair ocean-going steamers. The Mesopotamia and Persia Corporation, Ltd., have slipways and a similar repair workshop at Ashar. The power station is south-east of the port workshop. The total output is 1,065 kW.

Oil, Coal, and Water-supplies. Ocean-going vessels normally refuel at Abadan, where unlimited supplies of oil are available. Small craft, including port craft, inland water craft, and lighters, can lie alongside the Rafidain Oil Company's jetties at Muftiya, where 400,000 gallons of oil are normally stored.

Coal is not ordinarily available for bunkers, as small stocks only are maintained for local requirements, but there are handling facilities.

Water from the port filtration plant at Jubaila is available in ample supply for shipping, from standards on the wharves or from water barges. Boiler water can be taken direct from the river. The R.A.F. area has its own filtration plant, chlorination plant, and pumping station, which also supplies the R.A.F. station at Shuaiba by an underground pipe-line. The R.A.F. also owns a large filtration barge.

Capacity. The daily capacity of the port was estimated in 1941 at 1,800 tons, and the potential daily capacity at 3,600 to 5,400 tons.

Communications

Sea. The British India Steam Navigation Company maintains a weekly fast mail service to Bombay via Bushire and Karachi, and also a weekly slow mail service to Bombay calling at the Persian Gulf ports.

In 1939 regular direct cargo services were maintained to Europe by the Strick, Ellerman, Hansa, and Lloyd Triestino Lines, and to the Far East by the Nippon Yusen Kaisha and the Peninsular and Oriental Steam Navigation Company.

River. River steamers and barges ply regularly on the Tigris to Baghdad, and small native sailing-craft trade on the lower Tigris and Euphrates (pp. 559–61). Inland water craft mainly use Viceroy's Pier at the entrance to Ashar creek.

Ferry. A ferry service across the Shatt al Arab was inaugurated in 1941 between Ashar and Tanuma.

Road. The principal connecting roads in the port area are metalled. A macadamized road runs from the wharves via the R.A.F. area through Makina to Ashar, and thence inland to Basra City. There are roads [1], [2] to Baghdad by both the Tigris and Euphrates routes.

Rail. The main wharves are equipped with railway sidings connecting with the metre-gauge lines to Baghdad, Basra City, Zubair, and Umm Qasr. A standard-gauge line (p. 609) has recently been built from Tanuma to the Iranian railway at Hosseinieh; it is connected by metre-gauge line over the Shatt al Arab by the new Hull bridge with Coal Island and Maqil (p. 588).

Air. Imperial Airways in 1939 operated a bi-weekly service in each direction on their route between England and the Far East.

Signals. There is a port wireless station, and the airport has directional wireless equipment. The British submarine cables to India connect with the land telegraph at Fao.

Fao

Fao is the dredger depot for the port of Basra. It is on the right bank of the Shatt al Arab, 6 miles from the mouth. It is also the telegraph station at the terminus of the British cables from India. The village has no industries and owes its existence to the dredger depot, which employs about 600 Iraqi labourers. Fao contains a hospital, school, club, staff quarters, bazaar, police barracks, and army barracks. It has a wooden pier 15 yards long and 5 yards wide. Four floating pontoons form a jetty 70 yards long at right angles to the north side of the pier. There is a 5-ton travelling crane on the pier. Safe anchorage is available in the river for ships up to a length of 550 feet and a draught of 22 feet, but there are no mooring buoys. Drinking-water is settled from the river and chlorinated: Europeans always filter their water. Electric light is supplied from the port power station. A small stock of coal is maintained for the use of the crane and for domestic purposes.

Tanuma

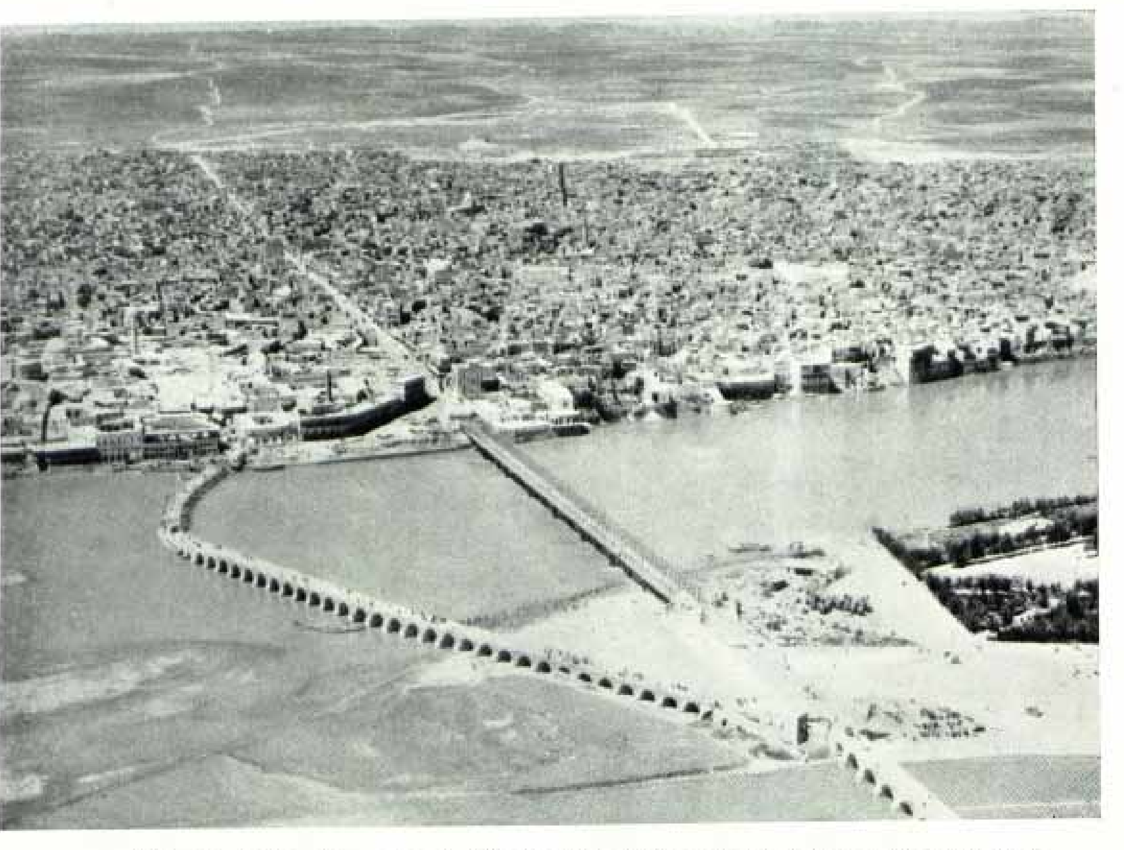
In 1941 there was already a military cantonment at Tanuma connected by ferry to Ashar. In 1942 a lighter harbour was dredged at Tanuma on the left bank of the Shatt al Arab opposite Ashar and linked by rail to the Persian system. Its purpose was mainly to improve the line of supply through Persia to Russia. Cantonments and extensive rail sidings were built, but it is improbable that the harbour will serve any economic purpose after the present war. The harbour is a rectangular basin called Kibasi basin, opening directly upon the Shatt al Arab, provided with administrative offices, workshops, and power and pumping stations for electricity and water. There is also a small jetty below the lighter basin. No other details are available for publication.

Communications

Standard-gauge railway to Hosseinieh junction and Ahwaz and by metre-gauge over the Hull bridge to Maqil.

198. *Loading grain into native craft at Maqil*

199. *Part of the marine dockyard and workshop, Maqil*



200. *The city of Mosul from the air. Old and new bridges over the Tigris in the foreground*

Umm Qasr

A small military port was built as a supplement to Basra at this village (population 1,000) in the War of 1914–1918. In 1942 the scheme was renewed. Timber wharves were built allowing for a maximum of 6 deep-water berths. The greater part of the scheme was apparently completed by January 1943, when 8 light portal cranes (3–5 tons) and one 15-ton crane were due to be installed. The estimated capacity on completion was 10,000 tons a month. There are railway sidings connected to the metre-gauge Basra–Baghdad railway at Shuaiba junction. No further details are available for publication.

Mosul. 36° 20′ N., 43° 08′ E.; alt. *c.* 730 feet. Pop. 100,000 (est. 1940). Liwa cap.; H.Q. Northern Command. Meteorological Station (R.I.A.F.).

Mosul lies on the western bank of the Tigris, which undercuts its walls. The country west of the town rises in gentle down-like undulations to the low ranges of the Jabal Nuwaigit and Jabal Atshan (1,000–1,600 ft.). The town owes its importance to its position opposite the fertile north Assyrian plain, for which it is the market, as it is also for the Kurdish mountains, the northern Jazira of Iraq, and the Jabal Sinjar. The population is of mixed origin, the preponderating influence and language being Arabic. There are many Kurds, some 6,500 Jews in a separate quarter, and about 25,000 Christians, who are mostly Syriac-speaking Nestorians, Chaldeans, Syrian Catholics, and Jacobites, with a few Latins and Armenians.

History

The two great mounds covering the ruins of Nineveh, the capital of the Assyrian Empire, are on the left bank of the Tigris opposite Mosul (photo. 36). After its destruction by the Medes in 612 B.C. there appears to have been no considerable city in the immediate neighbourhood until the Sassanid period, when the existence of the town of Budh Ardashir is recorded, near which the Sassanid monarch Chosroes II was defeated by the Byzantine emperor Heraclius in A.D. 627 (p. 237). Mosul, meaning the 'confluence'—of the Wadi Khosar and Tigris—first appears in A.D. 636, as the name of the town on the right bank which became the capital of the Jazira province of the Omayyad Empire under Marwan II. It grew to be a great city in the Abbasid period, a centre of commerce and industry,

with fine mosques, markets and hostelries, houses and palaces built of the local stone with vaulted roofs, a great castle and double city wall reaching to the river bank, and suburbs extending along the Tigris beyond the walls. There were also many Christian monasteries, particularly for the Nestorians. The connexion of Jonah with the ruin mounds of Nineveh, Tel at Tawba or the 'hill of repentance', was already established in the Abbasid period.

When Abbasid power decayed, Mosul became the capital first of an independent Arab kingdom under the Hamdanid dynasty, stretching west to Aleppo, and later, from 1095 to 1154, a Seljuk fief ruled by Atabegs. The greatest of these was Nur ad Din, the champion of Islam against the Crusaders (p. 246). After him Mosul was taken by Saladin and held by his successors, such as the 'Pearl Sultan' Lulu, a great builder of mosques, who ruled from 1213 until the disastrous sack by the Mongols of Hulagu in 1259. In 1400 its ruin was completed by Tamerlane, who also used it as his headquarters. From these blows and the attendant depopulation of the countryside it never fully recovered. In the sixteenth century the rising Safawid Empire of Persia extended its power for a time to Mosul, but the Ottoman Sultan Selim I wrested it from them (p. 256). Thereafter it remained directly or indirectly under Ottoman rule. In the eighteenth century Mosul was ruled by an oligarchy of local notables, principally the Jalili, a family of Christian origin, one of whom led the heroic resistance of the city against the Persian Shah Nadir Quli in the siege of 1743. The factions in the town were active in intrigues and street battles; but in the nineteenth century Turkish authority was revived and the local families went into eclipse, although the Jalili's descendants remain there to this day. In 1878 Mosul was made the capital of a separate vilayet. In the days of its greatness it was famed for its craftsmen and for its textile work, the word 'muslin' being derived from the name of the town. It had been of comparatively little commercial importance in the Ottoman Empire for the last 300 years, when, after the surrender of the Turkish army on the Tigris, the town was occupied by the British on 3 November 1918.

General Description (fig. 82; photo. 200)

Mosul is perhaps the most interesting old town in Iraq and presents a complete picture of a mixed Islamic and Christian community. Before 1918 it had a reputation for dirt remarkable even in the Ottoman Empire, but since then it has been very greatly improved, though it still lacks a modern sanitary system. It has always had a

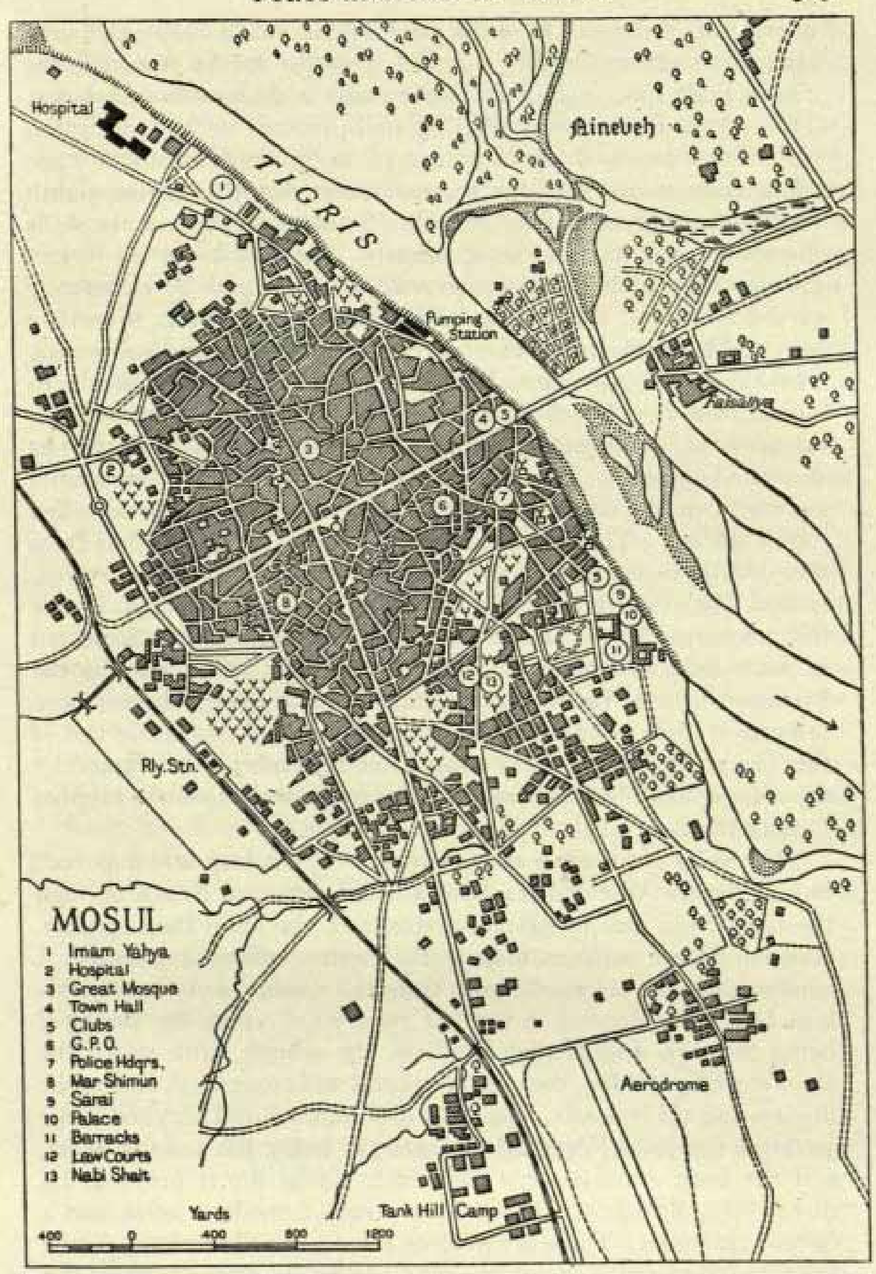


FIG. 82. *Plan of Mosul*

distinctive appearance from the extensive use made of speckled grey alabastrine rock as building material. Another special feature is the considerable space within the town which is devoted to cemeteries. The old town was surrounded by walls, pierced with eleven gates, which have mostly disappeared except on the north-west and west; the ancient ruined castle in the north-east dating from the eighth century is impressive from outside. Southwards beyond the walls the town has spread in a small suburb. The double-storied houses are generally built round courtyards, often entered by elaborately carved doorways, and present a blank wall to the street; rooms are lofty and barrel-vaulted. There are some 20 mosques and 8 churches. The Great Mosque Jami al Kabir or Al Arbain ('the Forty'), so named from the church of St. Paul and the Forty Martyrs which it replaced, is in the centre of the town, and is remarkable for its decorated minaret. The picturesque mosque of Nabi Shait amid cemeteries in the south, near the Bab Lagash, contains the so-called 'tomb of Seth'. The oldest of the churches, which mostly date from the twelfth to thirteenth centuries and have been much restored, is the Chaldean church of Mar Shimun, originally built in the fifth century. The Chaldean church of Mar Ahudani is decorated in Arab style, and the Syrian church of Mar Tuma resembles the Moslem shrine of Imam Yahya, a fine building among the northern cemeteries built by Sultan Lulu. On the left bank of the old bed of the Tigris the smaller of the mounds of Nineveh is surmounted by the mosque of Nabi Yunis, marking the traditional site of the prophet Jonah's tomb.

The streets of the town are mostly narrow, winding, and unpaved; but during the War of 1914–1918 a broad street was driven through the town from east to west, and this, now the main thoroughfare, Nineveh Street, contains most of the modern offices and shops. A similar road cuts across the town from the south. Many new buildings have been erected in the last twenty-five years, the principal being the sarai and municipal offices, the schools, with which the town is well provided, both governmental and communal, the public library, and the barracks. Hospitals include the Royal (227 beds), the Isolation (50 beds), Venereal Diseases (22 beds), the Jail (28 beds), and the Iraqi army hospital (80 beds). Social life is provided by three clubs, British, Civil, and Iraqi Army, a modern hotel, and a railway resthouse. There is a modern royal palace, built in 1933, the old palace being used as military offices. The jail, police station, and G.P.O. are in the centre of the town; the headquarters of the Northern

Army Command is 1 mile to the south on Tank Hill by the airfield. The main bazaars are near the river. There is also a small modern suburb called Faisaliya on the left bank opposite Mosul.

Mosul is an episcopal city and seat of patriarchates for most of the churches of Iraq (p. 333–5). A great part is played in the life of the Christian population by the Roman Catholic missions, with the papal Apostolic Delegate at their head, which maintain churches, convents, schools, and seminaries. The French Dominican Fathers have been established longest, but Italian Salesians and the French Sisters of the Presentation of Tours are also present.

Commerce and Industry. The local industries of weaving, tanning, and dyeing are mainly handcrafts, but there are flour-mills, some oil-pressing, soap and cigarette workshops, tanneries, a dyeworks, one large weaving factory, and three ice-plants and soda-water factories. Outside the town there are numerous lime-kilns and much local cement is made from gypsum (*juss*), which is quarried in the hills to the west, and charcoal is produced in the province for the Mosul market. Artisans such as carpenters, masons, blacksmiths, and coppersmiths are numerous. The main economic activity is not industry but trade, particularly in grain and wool from the surrounding regions. In the extensive bazaars minor oriental crafts, particularly of gold and copper work, are carried on. There is considerable trade by kellek down the Tigris from Turkish Armenia and to Baghdad in general goods and also in timber and firewood, though some of this comes on pack-ponies from the mountains. The quay for kelleks is on the left bank below the bridge. Grain and meat are abundant, as are fruit and vegetables in season.

Electricity is supplied by a municipal power station half a mile above the bridge on the right bank of the Tigris. *Water* is pumped from the Tigris by a municipal pumping-station, in the same compound, with a capacity of 1,000,000 gallons a day; its reservoir holds 500,000 gallons.

Communications

The river is bridged at Mosul by an 8-span Hopkins steel bridge on steel concrete-filled cylindrical piers, built in 1934, which has replaced the former Turkish bridge. There is also a motor-boat ferry of 6 tons capacity.

Rail. Mosul is on the standard-gauge line (Rly. 4) from Baghdad which continues north-west across the Syrian Jazira to Nusaybin in

Turkey, and is thus connected through Aleppo in Syria with the Bosporus.

Road. Mosul is the general route-centre of northern Iraq. The most important roads are: fair-weather motor-roads [10] [11] north-north-west to Dohuk and Zakho, north-north-east to Amadia, north-east to Aqra; an all-weather tarmac motor-road [6] south-east, crossing the Great Zab at Eski Kellek for Erbil, Kirkuk, and Baghdad; a motor-road [5] south along the right bank of the Tigris to Baghdad, metalled as far as Qala Sharqat; a new motor-road [13] west to Tel Afar, Balad Sinjar, and thence through Syria; an unmetalled fair-weather motor-road [12] north-west to Nusaybin in Turkey.

Water. The Tigris is navigable only in the flood season, and then with considerable difficulty, up to Mosul for vessels of 3 feet draught.

Air. There is an airfield 1 mile south of the town.

GAZETTEER

ALTUN KOPRU. 35° 45′ N., 44° 08′ E.; alt. *c.* 850 feet. Pop. 1,700. Nahiya cap., Kirkuk Liwa.

Altun Kopru, 'the golden bridge', midway between Erbil and Kirkuk, derives most of its importance from its position on the Little Zab where throughout history the Erbil–Kirkuk road has crossed the river. It is inhabited mostly by Turkomans and Kurds, with a few Arabs.

The town is built on both banks and on a triangular island in the centre of a south-westerly bend of the river (photo. 202). The island rises at its northern end in high cliff banks, but slopes downstream to a tongue of sandy ground and a shingly foreshore. For most of the year the western channel is dry and the eastern fordable. Two steel bridges connect the island with the banks (p. 569). Most of the 500 houses of the town, a bazaar, and a hospital are in a compact group on the eastern side of the island. The remainder, which include a few larger and better spaced houses, are grouped on the mainland on either side. The sarai is on the east bank at the entrance to the town. The state of the exposed foreshore renders the town unhealthy at low water. *Water* is obtained from the river. The chief articles of commerce are wheat, barley, wool, and timber. There is some kellek traffic down the river from Taktak.

Communications

Land: Unmetalled dry-weather road north-west by Quwair on the Great Zab to Mosul; all-weather tarmac road [6][1] north-north-west to Erbil and south-east to Kirkuk; alternative fair-weather route south-south-east to

[1] The figures in square brackets are the Road numbers in Chapter XIII and on the Communications map.

Kirkuk passes west of the Kani Domlan hills. Tracks north-east up the Little Zab to Taktak and south-west downstream to Fat-ha.

Air: Emergency landing-ground 1 mile east-south-east of the town.

AMADIA. 37° 06′ N., 43° 28′ E.; alt. *c.* 3,500 feet. Pop. 3,000. Qadha cap., Mosul Liwa. Rainfall station (P. and T.).

Amadia is built at the north end of an oval plateau above the Sipna Nihail tributary of the Great Zab, about 56 miles north of Mosul. The plateau, 1,400 yards long from north to south and 550 yards at its widest, is connected by a narrow col to the main ridge of the Ser Amadia range, which rises 3 miles north of the town to over 6,100 feet; it falls on both sides to tributaries of the Sipna Nihail, narrow and deep on the west, broader and shallower on the south-east, and is approached from these by two routes, leading to gateways on the west and north-east. At the southern end of the plateau are the ruins of a Kurdish castle with a masonry wall and bastions, from which there is a wide view over the Sipna Nihail valley. The town is the local market for the agricultural produce of the Kurdish and Christian peasantry of the district of Barwar, in the centre of which it lies. The inhabitants include Kurds, Nestorian and Chaldean Christians, and Jews. There is a small bazaar with the usual trades and crafts. *Water* is from springs outside the town.

History

Tradition ascribes the founding of Amadia to the Dilemite prince Imad ad Daulah (d. A.D. 949) and its restoration to the Seljuk Atabeg of Mosul, Imad ad Din Zangi, in A.D. 1142. There was a Kurdish castle here by the thirteenth century, and in the fourteenth the town was of a fair size. Amadia played a notable part in local history as the stronghold of Kurdish dynasts, 'valley lords' or Dere Beg, of the Bahdinan family, who were already established in the fourteenth century and continued to rule a principality extending to Aqra, Dohuk, and Zakho, under the nominal suzerainty first of the Persian princes of Ardalan and later of the Ottoman Sultans. The Bahdinan were wealthy, and in 1660 the Beg of Amadia could raise no less than 10,000 horsemen. In the early eighteenth century, however, the Mamluk Pasha of Baghdad, Ahmad (p. 259), besieged and took Amadia, and forced the Bahdinans to recognize the full authority of the Ottoman Government. Their power was greatly restored during the long rule of Bahram Pasha and his son (*c.* 1735–1787), but thereafter violent family quarrels weakened the dynasty and in 1833 the whole principality fell into the hands of the great ruler of Ruwandiz, Mohammed Beg. In 1838 the Ottoman Government intervened, Amadia was captured, the local dynasts finally dispossessed, and eventually a Turkish Qaimmaqam was installed as governor. In 1843 a notorious massacre of Nestorian Christians was instigated by the fanatic Nurulla and led to English protests; before 1914 the

adjacent village of Bebadi housed a station of the Anglican mission to the Nestorians. In 1919 the murder by the local aghas of two British political officers who had taken over the town with the support only of Levies, was followed by a remarkable local campaign in which British authority was first established among the Barwar tribes.

Communications

Land: Tracks lead south-west over the Tang-i-Daria hills to Dohuk, and Simel [11a], north over the Ser Amadia to the Bekhlati valley, east along the Sipna Nihail valley past its confluence with the Great Zab to Zibar, south by devious routes over the Ghara Dagh to the headwaters in the Rozah Shor valley of the Khazir Su, and eventually to Aqra.

Air: Landing-ground south of Bebadi village, 2 miles west of Amadia.

AMARA. 31° 51′ N., 47° 09′ E.; alt. 30 feet. Pop. 18,000. Liwa cap. Rainfall station (P. and T.).

Amara, on the left bank of the Tigris 90 miles by river above Qurna and 126 miles below Kut al Imara, lies among riverside date-plantations in the midst of a wide cultivated area to the south of the Haurs Isawi, Halfawi, Jazra, and Sanaf. The town, which stands on a strip of ground enclosed on the west by the Tigris, on the north and east by the Mashara and Chahala canals (fig. 10), is the most important town and river port on the Tigris south of Baghdad, controlling a bridge across the Tigris, and being the commercial centre of a fertile agricultural area. The population is mostly Arab, with a sprinkling of Persian and Jewish merchants, a strong colony of Sabians (p. 331), and a number of Christians. There is a large influx of Lurs, most of whom are porters.

Amara has grown up since 1860 largely as a result of the pacification and agricultural development of the district. It was captured by the British forces on 3 June 1915 (p. 276), and has remained quiet during the nationalist troubles of 1919–1920 and throughout its recent history.

General Description

The town has a river frontage of about half a mile, faced by a brick wharf, and is joined by a 70-yard steel pontoon bridge 20 feet wide, to the suburb of Daffas. The northern quarter of Amara is the oldest; the southern has well-built houses of recent date along the river which are occupied by officials and local shaikhs. Most of the town roads, except that from the bridge to its northern exit, are too narrow for wheeled traffic. The principal buildings are: the sarai, the Mutasarrif's residence, a new Law Courts building, a bank, three schools, a small Public Library, three hospitals (civil 56 beds, leprosy 220 beds, American mission 34 beds), the police barracks, and the jail. A large covered bazaar contains about 500 shops.

201. *Aqra from the south-west*



202. *Altun Kopru from the air*

203. *Halabja*

204. *Erbil from the south*

Electricity is provided by a municipal power station and chlorinated *water* by a pumping-station with a capacity of 80,000 gallons a day.

The bazaars contain grain and meat, vegetables and fruit in season; cattle and goats are abundant in the neighbourhood. There are considerable exports of cattle and grain by river to Basra and Baghdad. Wool, skins, and hides are also exported. *Abas* (Arab cloaks), Kurdish rugs, and silver-ware made by the Sabians, are among the local products. Ice and soda-water factories exist.

Communications

Water: There is communication by river steamer and native vessels with Baghdad and Basra. The marshes to the east of the Amara area can be penetrated by boats and local knowledge.

Land: Unmetalled road [1] on the left bank north to Kut and Baghdad, and on right bank south to Basra; an unmetalled route north up the right bank to Kumait and Ali Gharbi, passing through marshy country; a dry-weather wheel-route east follows the Nahr Mashara and crosses the Hawiza desert to Ahwaz in Persia.

Air: Air landing-ground west of the Tigris.

ANA. 34° 28′ N., 41° 58′ E.; alt. *c.* 500 feet. Pop. 9,000. Qadha cap., Dulaim Liwa. Rainfall station (P. and T.).

Ana is on the south bank of the Euphrates 35 miles directly north-north-west of Haditha and 96 miles west of Tikrit, beneath a steep cliff, above which rises the desert plateau. There are palm-groves and small fields of barley around the settlement and a chain of small fertile islands parallel with the town, which are cultivated and sometimes inhabited.

Ana is an agricultural settlement and desert market, more than a quarter of whose inhabitants are Jews. The town consists of a long straggling street 6 miles long between the cliff and the Euphrates, the houses clinging close to the rocks. The sarai stands on the edge of a wadi at the east end of the town, in which there are eight quarters, the oldest being the Bait al Kohli. The Jews live in the quarters of Al Uja and Ash Sharia and have a synagogue. Many of the houses in Ash Sharia have thick walls, wider at the base than the top, small windows and castellations, and an enclosing machicolated wall; they are often of three stories but without ground-floor windows. The bazaar of about 200 shops is frequented by Dulaim shepherd tribesmen, and Amarat or Shammar beduin. There is an old fort on Lubbad island. The decaying village of Rawa rises in terraces on the left bank of the river bend opposite and just above Ana, and is reached by ferry. *Water* is from the Euphrates, and supplies of rice, dates, flour, barley, fruits, and sheep abound. The civil hospital has 6 beds.

The centre of the Ana settlement originally lay on the islands. From Assyrian to Parthian times there was a town and fort of Anatho on the isle

of Lubbad which was once besieged and sacked by the Romans. In Abbasid times the town still flourished, being famous for its palm-groves, and gave refuge to the Caliph Kaim in A.D. 1058 when the Dilemites espoused the Shia cause. At the end of the seventeenth century the Persian invasions reached Ana and it suffered damage (photo. 131).

Communications

Land: Unmetalled road [4] east to Ramadi and west to Al Qaim. An almost waterless dry-weather track (*Darb as Sultan*) connects Rawa on the left bank east to Al Hadhr (Hatra) in the Jazira and Shora on the Mosul–Baghdad road.

Water: The river is navigable for shakhturs (p. 558), the boatmen of Ana being noted for their knowledge of the currents both above and below the town.

Air: Landing-ground 1 mile south of the town.

AQRA. 36° 45′ N., 43° 54′ E.; alt. *c.* 2,500 feet. Pop. 4,000. Qadha cap., Mosul Liwa.

Aqra is a small town 50 miles north-east of Mosul on the southern slopes of the rugged 4,000-foot Aqra Dagh overlooking the Mosul plain (photo. 201). The chief settlement in the territory of the Surchi Kurds, it is inhabited mainly by Kurds, but it also includes Jews and Christians, particularly Nestorians. The town, which contains 800 houses mostly of stone, is built on a spur isolated by two streams, but has spread into the valleys. A Jewish quarter is on the left bank of the western stream, a Christian on the right bank of the eastern. The Christians are blacksmiths, joiners, and artisans; the Jews traders and weavers. Rice and tobacco are grown for local consumption. *Water* from springs round the town has a mineral content. There is a strong police post in the town and an antique sarai; though the townsfolk are peaceable, both the Surchi and the Zibari tribe north of the Aqra Dagh are amongst the most troublesome tribes in Kurdistan.

Communications

Land: Bad track north over Aqra Dagh to upper Great Zab valley and Zibar village. Mule-track south-east to Kandil ferry over the Great Zab and thence to Ruwandiz. Unmetalled fair-weather road [10] south-west to Mosul.

Air: Landing-ground (summer) in the plain 4 miles south-west of Aqra.

BAGHDAD. *See* p. 499.

BAQUBA. 33° 45′ N., 44° 39′ E.; alt. *c.* 150 feet. Pop. 10,000. Diyala Liwa cap.

The town lies 34 miles north-north-east of Baghdad near the left bank of the Diyala and is surrounded by date-gardens and orange-groves. It is

the central market for agricultural produce of a wide area irrigated by the Khalis, Khurasan, Mahrut, Ruz, and other canals, and commands the rail and road crossing over the Diyala on the main road from Baghdad to Persia. It is inhabited mostly by non-tribal Arabs.

In Abbasid times Baquba derived its importance both from the Persian road, which brought the trade of the Far East to Iraq, and from the great waterway of the Nahrwan canal, which silted up by the thirteenth century. The Persian invasions of Ottoman times usually engulfed Baquba, the most recent Persian occupation being by the Governor of Kermanshah in 1821. The building of the railway to Khanaqin has enhanced the importance of the trade route. During the Great War Baquba became in 1917 a forward base for the defence of Baghdad, covering the routes from the Assyrian plains to Baghdad. The Assyrian refugees were originally housed in a great camp near the town. The Arab rebellion of 1920 involved Baquba, which was evacuated by the British military forces, though the political officers remained and were murdered. In the reorganization of Iraq, Baquba became the administrative capital of the new province of Diyala.

General Description

The town contains over 1,000 mud-brick houses and more than one bazaar, the principal one containing about 200 shops. There is a sarai, a police barracks, and schools. Electric current is supplied by government licensee. *Water* is obtained from canals in the vicinity. The great dry course of the ancient Nahrwan canal is 2 miles west of the town. South of the town the river is bridged by a modern 6-span steel-truss bridge which takes both road and rail (p. 571). The bazaars are well stocked with grain, meat, vegetables, and imported goods; large quantities of dates are exported. There is a hospital with 30 beds.

Communications

Water: The Diyala is navigable up to Baquba in flood season between December and April by launches and native craft, though the current is swift and the bends very sharp.

Rail: Baquba station is on the metre-gauge Baghdad–Kirkuk line (Rly. 2); from Jassimiya just north of it a branch goes to Kut al Imara (Rly. 3).

Road: New motor-road [6] north-west to Diltawa, the Injana pass, and Tuz Khurmatli, with poor unmetalled branch north to Delli Abbas, west of the Diyala. Metalled tarmac road [7] north-east through Qizil Ribat to Khanaqin, and Kermanshah in Persia. Unmetalled route [7*a*] east to Mandali. Metalled tarmac road [6] south-south-west to Baghdad.

Air: Landing-ground south of the railway bridge.

BASRA. *See* p. 505.

DIWANIYA. 31° 59′ N., 44° 55′ E.; alt. *c.* 70 feet. Pop. 8,000. Liwa cap. Rainfall station (R.I.A.F.).

Diwaniya is on the Hilla branch of the Euphrates, 51 miles by road south-south-east of Hilla. Nearly all of the population are Shia Arabs. It is the capital of one of the richest provinces in Iraq and an important base for the administration of the turbulent 'Middle Euphrates' area and of the southern desert.

Diwaniya, formerly known as Hiska, first became a centre of government in the eighteenth century when the Mamluk Pashas stationed a powerful Agha in the town, but it frequently suffered incursions from the tribes of the south, principal among whom were the Muntafiq. Its modern importance dates from its elevation by the Turks to be capital of a Sanjaq. In the War of 1914–1918 it was held for several months after the fall of Baghdad by a fierce Caucasian officer and a small Turkish garrison. The town was evacuated by the British during the 1920 rebellion (p. 291).

General Description

Diwaniya stands on both banks of the Hilla channel (Shatt ad Diwaniya), which is here 90–95 yards wide, with banks 13–16 feet above the river bottom, and is crossed by a pile bridge with an opening span. The larger part of the town is on the left bank. About half the houses are of brick, very few of them well built, and the rest are of mud. There is a new, semi-fortified sarai on the left bank between the old sarai and the police barracks. A large police barracks, school, and civil hospital (50 beds) lie on the left bank to the north of the town, which has also a modern Arab hotel, a public library, some khans, public baths, grain-stores, motor repair shops, and a covered bazaar. The railway station, which is semi-fortified, is on the right bank 1 mile from the main town, and the Iraqi Army barracks are half-way between the railway station and the river.

The town is the central market of the province, particularly for grain, and draws large quantities of vegetables, dates, wheat, barley, rice, and sheep from its district. *Water* is obtained from the river and there are wells of sweet water in the town. Ice and electricity are available.

Communications

Rail: Diwaniya station is on the Basra–Baghdad metre-gauge line (Rly. 1).

Road: Unmetalled (right bank) main road [2] north to Baghdad and south to Samawa and Basra. Dry-weather roads east-north-east to Afaq and west to Abu Sukhair and Najaf. A poor route north to Daghghara. The country is liable to extensive flooding and other roads are notoriously bad.

Air: There is an R.I.A.F. airfield north-east of the town.

ERBIL. 36° 11′ N., 44° 01′ E.; alt. *c.* 1,360 feet. Pop. 17,000. Liwa cap. Rainfall station (P. and T.).

Erbil lies in a fertile region of the Assyrian plains between the two Zabs (alt. 1,360 ft.), 52 miles by road south-east of Mosul. Two streams which skirt the town, the Chai Shaikh Qazi on the north-west and the Chai Erbil on the south, are generally dry except during a winter spate, and cultivation depends on rain and on irrigation by karez. The inhabitants are mainly Turkomans with a strong Kurdish admixture and a colony of Jews and Christians. The town is a wealthy agricultural market centre.

History

Erbil, the Assyrian Arba-ilu (*class.* Arbela) or City of the Four Gods, claims with some justice to be the oldest town in the world which has been continuously inhabited. Its great mound was formed by the deposit of an uncounted series of settlements. Certainly it was a great place in Babylonian and Assyrian times, being especially famous for its temple of Ishtar. In the Achaemenid Empire it continued to flourish. It was from Arbela that the decisive victory of Alexander the Great over Darius III in 331 B.C. took its better known name, though the battle was fought north of the Great Zab in the plain of Mosul. Later Arbela became the capital of the Parthian sub-kingdom of Adiabene and the burial place of its kings. Its pagan sanctity faded with the spread of Christianity and the town was only of provincial importance after the Moslem conquest, though the battle of the Great Zab, by which the caliphate passed from the Omayyads to the Abbasids, was fought in the neighbourhood (A.D. 750). But its position as a road and market centre guaranteed its prosperity, and it survived the Mongol invasions though besieged by Tamerlane in A.D. 1400. The Persian conqueror Nadir Shah captured it in 1743 after a 60 days' siege and held it for a while. In 1826 it was controlled for a short time by Mohammed Khor, the blind Beg of Ruwandiz (p. 262). But like Kirkuk its peace has generally been undisturbed, and the main effect even of the Great War was only to enrich the landowners and merchants.

General Description (fig. 83; photos. 1, 204)

Erbil is dominated by its citadel or Qala, which stands on an impressive tel rising 200 feet above the plain with a slope of 1 in 1 and 600 yards in diameter. The citadel has a ring-wall, into which houses have been built with windows and balconies overlooking the plain, and which is pierced by two gates, on the south and east, approached by cobbled ramps. This part of the town, which has a population of about 6,000, contains the purest Turkish element and includes the homes of the richer merchants and landowners. Inside there are many narrow, winding, and intricate streets and even underground passages. Town aghas have magnificent guest-houses built of brick, some of them with pavements and columns of

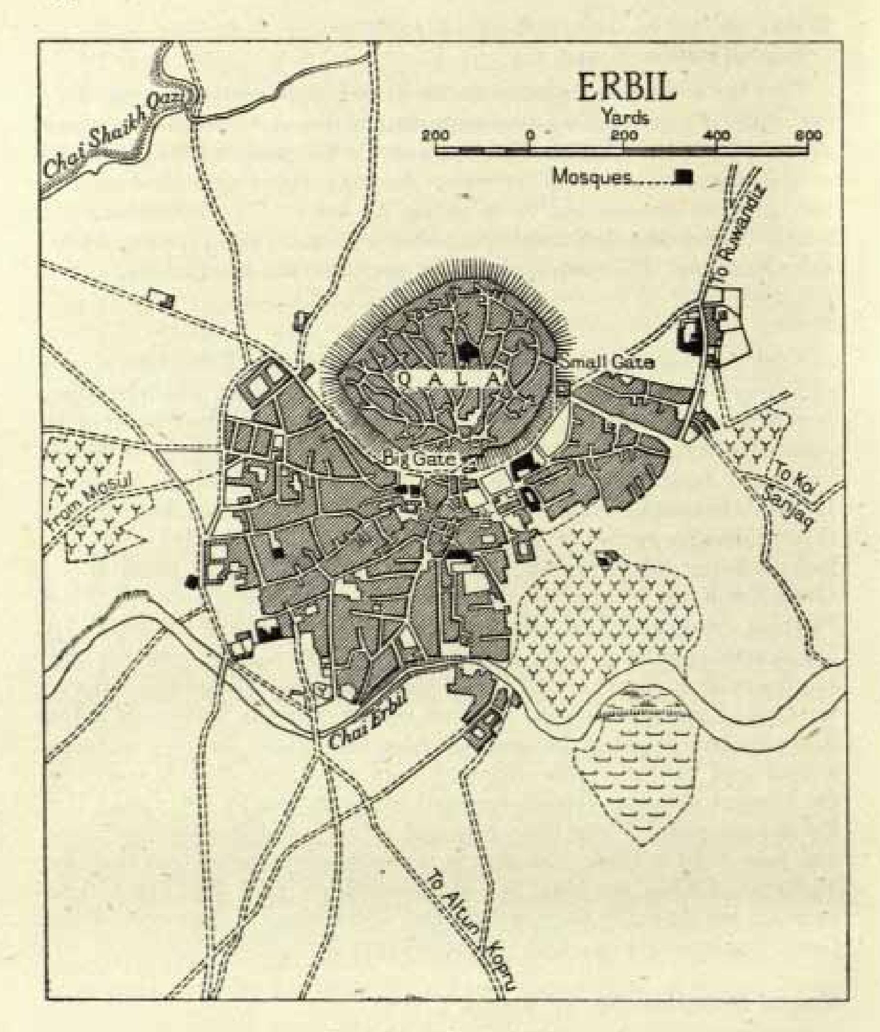


FIG. 83. *Plan of Erbil*

marble inside. The rooms are built round a courtyard in which a few trees are generally growing.

The town has overflowed into the plain from the mound and forms a wide arc round the tel from east to south-west. The modern buildings are in the plain, particularly the sarai, schools, hospital (30 beds), and the police barracks, though the bulk of the outer town is old, compact, and full of narrow lanes, with a number of mosques and khans, and a great bazaar

of 400 shops near the southern entrance of the Qala. There is a rest house on the outskirts.

Tanning and felt-making are carried on and the small Jewish section is mainly occupied with dyeing and weaving. There is much transit trade with Persia, Kurdistan, and lower Iraq, and with Urmia in Turkey. Some of the Erbil merchants have wide connexions, possessing their own agents in Aleppo and Baghdad. There are very few of the poorest classes, and the townsmen are among the least lawless in Iraq. Supplies of barley, wheat, rice, vegetables and fruit, sheep and goats are available; also tobacco and gallnuts.

There is a municipal electric-lighting plant (150 kW.). *Water-supply* is by pump from a large karez (capacity 280,000 galls. a day) to a reservoir of 60,000 gallons in the citadel and also from wells (10,000 galls. an hour).

Communications

Land: Erbil is a route centre for its section of the Assyrian plain. Tarmac road [6] west-north-west to Mosul. Metalled road [9] north-east to Shaqlawa, Ruwandiz, and the Persian border. Track east-south-east to Koi Sanjaq. Tarmac road [6] south to Altun Kopru and Kirkuk. Track south-west to Makhmur and Qala Sharqat.

Air: There are several landing-grounds in the vicinity of the town.

FALLUJA. 33° 21′ N., 43° 46′ E.; alt. *c.* 130 feet. Pop. 8,000. Qadha cap., Dulaim Liwa.

Falluja is a small town lying in the Jazira plain on the left bank of the Euphrates about 40 miles west of Baghdad. It is the centre of the section of the Euphrates from which the northern canals diverge towards the Tigris, between the head of the Saqlawiya and Abu Ghuraib canals, and it controls the most northerly bridge of the Euphrates in Iraq. The inhabitants are Sunni Arabs; the neighbouring tribes are the Albu Isa, Jumaila, and Albu Muhamda sections of the Dulaim.

At or near Falluja the land route from Syria across the desert or following the Euphrates has always crossed the river eastwards to reach the capital on the Tigris. Sumerian Rapiqu was near by, and in Abbasid times there was a great city to the north-west of Falluja at Anbar, near the mouth of the then Nahr Isa canal. In the sixteenth century European merchants left their boats at 'Feluge', continuing by land to Baghdad; thus Falluja became a regular stage on the various caravan and carrier routes to Baghdad and Basra. The building of the route by Rutba to Transjordan has enhanced its modern importance, and in 1941 the principal engagement between the Iraqi and the British forces was for the control of Falluja.

The town lies at the outer edge of a bend of the Euphrates, and consists of houses of sun-dried brick with a sarai, mosque, khans, and a bazaar of 150 shops. Plentiful supplies of wheat, barley, and sheep are available, and

the town is a desert market for shepherd and camel nomads. Cultivation is developing apace in the district with the improvement of the canals. *Water* is obtained from the Euphrates.

Communications

Land: Tarmac road [4] [15] east to Baghdad and west to Rutba and Haifa in Palestine, crosses the Euphrates by a bridge of 5 truss spans on steel cement-filled piers (photo. 218). It is 900 feet long and 12 feet wide. South-east a route follows the left bank of the Euphrates to Musaiyib. North-west beyond Ramadi the road [4] along the right bank is generally unmetalled.

Water: The Euphrates is navigable upstream to Hit by vessels of minimum 3 feet draught at all seasons; downstream to Hindiya the minimum is 4 feet.

Air: The R.A.F. Cantonment and air base of Habbaniya is on the right bank of the Euphrates 14 miles upstream of Falluja.

HALABJA. 35° 10′ N., 45° 59′ E.; alt. 2,300 feet. Pop. 2,000. Qadha cap., Sulaimaniya Liwa.

Halabja is a very small town lying in an open plain 40 miles south-east of Sulaimaniya, with hills rising to over 5,000 feet south and south-east. The population consists chiefly of Kurds with a few Persians, Jews, and Christians (photo. 203).

The plain of Halabja, formerly known as the plain of Shahrizor, Strong City, or Shahr-i-Bazar, Market Town, contained since Sassanid times a prosperous agricultural population of Kurds and Chaldean Christians until the massacres and misgovernment of the fanatic Abdul Qadir about 1700 laid the countryside waste. In the eighteenth century Halabja was re-populated by Jaf Kurds, and since about 1800 has grown in local importance at the expense of Gulian Bar 20 miles to the north, the former 'Market Town'. About then it became the residence of the paramount Agha of the Pushtamala sections of the Jaf Kurds, and has been the centre of the qadha of Shahr-i-Bazar since the late nineteenth century. After 1895 it grew in size and character under the administration of the Jaf agha Uthman Pasha and his Persian-Kurdish wife, the famous Adela Khanum who designed and built the local bazaar and thereby attracted trade.

There are about 350 houses, including some fine buildings in the Persian style and the square bazaar of Adela Khanum. The general atmosphere is Persian. The town is surrounded by thickly wooded gardens which lie away from the houses. Much tobacco is grown in the Halabja district and rice and other cereals in the plains near the Tanjero. There is some trade with Persia. In summer the Jaf element moves up into the cooler hills. *Water* is taken from a tributary of the Tanjero. Hospital of 20 beds.

Communications

Land: A good tarred motor-road [8c] goes north past Khurmal to join the Sulaimaniya–Penjwin road at Serao; but it may be unreliable in winter. An alternative track leads north to Penjwin. Mountain tracks lead east to Nausud in Persia and west to Shaikh Maidan on the Diyala.

Air: Landing-ground north-west of the town.

HILLA. 32° 29′ N., 44° 26′ E.; alt. *c.* 90 feet. Pop. 20,000. Liwa cap. Rainfall station (Rlys).

Hilla is on the eastern or Hilla branch of the Euphrates, 60 miles by road south of Baghdad. The town is on both sides of the river, and is surrounded by extensive date-gardens. Most of the inhabitants are Shia Arabs, the remainder Sunni Arabs and a certain number of Persian and Indian Shias. The town is a river port and the largest grain centre of the 'Middle Euphrates' area. The ruins of Babylon are 4 miles north of Hilla.

History

The original town in Abbasid times, called Al Jamian, 'the two mosques', was on the left bank of what was then becoming the main stream of the Euphrates. Al Hilla or 'the settlement' was built on the right bank by an Arab shaikh in A.D. 1102 to control a great bridge of boats which became the main crossing of the Euphrates. Then as now it was a large and prosperous provincial town and its inhabitants were devout Shias. This rule was relatively undisturbed by the tribal warfare of the Ottoman period or by the advent of the Zubaid tribe to the district, who eventually began to settle down as fellahin during the nineteenth century (photo. 130). The gradual diversion of the Euphrates waters from the Hilla to the Hindiya channel was a catastrophic blow to local cultivation, which was only saved by the construction of the Hindiya barrage in 1913 (p. 35). During the Great War Hilla was sacked by the Turks, in 1916, as punishment for a rebellion, and the district was disturbed during the Arab revolt of 1920, though the British never lost control of the town.

General Description

The major part of the town is on the right bank and was formerly surrounded by a wall 16 feet high, now much destroyed. The quarter on the left bank, called the Jazira, was open. Many of the older buildings were made with bricks taken from the ruins of Babylon. A road 20 feet broad traverses both quarters which are connected by two bridges, a timber trestle bridge for heavy traffic and a strong pontoon bridge for light traffic. The principal public buildings, mostly around a central square on the right bank, are the sarai, the police barracks, and civil jail. There are several government and private schools, a public library, a civil hospital of 50 beds, eye and jail hospitals of 12 beds. Hilla is a great cereal market; the grain

stores and khans often contain as much as 10,000 tons of barley and wheat retained in store for a rise in prices. Export is by river and rail to Baghdad and Basra. There is an extensive covered bazaar containing about 1,000 stalls, in which are sold saddles and felt rugs manufactured in the town. Apart from commerce a great number of the population are employed in cultivation as fellahin. The town also has its complement of absentee landowners and money-lenders. Hilla is a military depot, the barracks being outside the town on the left bank near the railway station.

Water is still apparently taken direct from the river and irrigation channels, the only storage tanks being at the railway station. Electricity is supplied for lighting by a private plant (55 and 25 kW., 440 volts D.C.).

Communications

Rail: The railway station, on the left bank 1½ miles north-north-east of the town, is on the Basra–Baghdad line (Rly. 1).

Road: Main motor-road [2] north direct to Baghdad, the last 28 miles of which have a tarmac surface, and south-east unmetalled on right bank to Diwaniya, Samawa, and Basra; alternative route on left bank east-south-east by Daghghara barrage to Diwaniya. Unmetalled roads [2*a*] [2*b*] south to Kufa and Najaf and north-west to Tuwairij (Hindiya) and Karbala; both are well graded, embanked above flood-level, and well bridged where necessary.

Air: Landing-ground three-quarters of a mile north of the town.

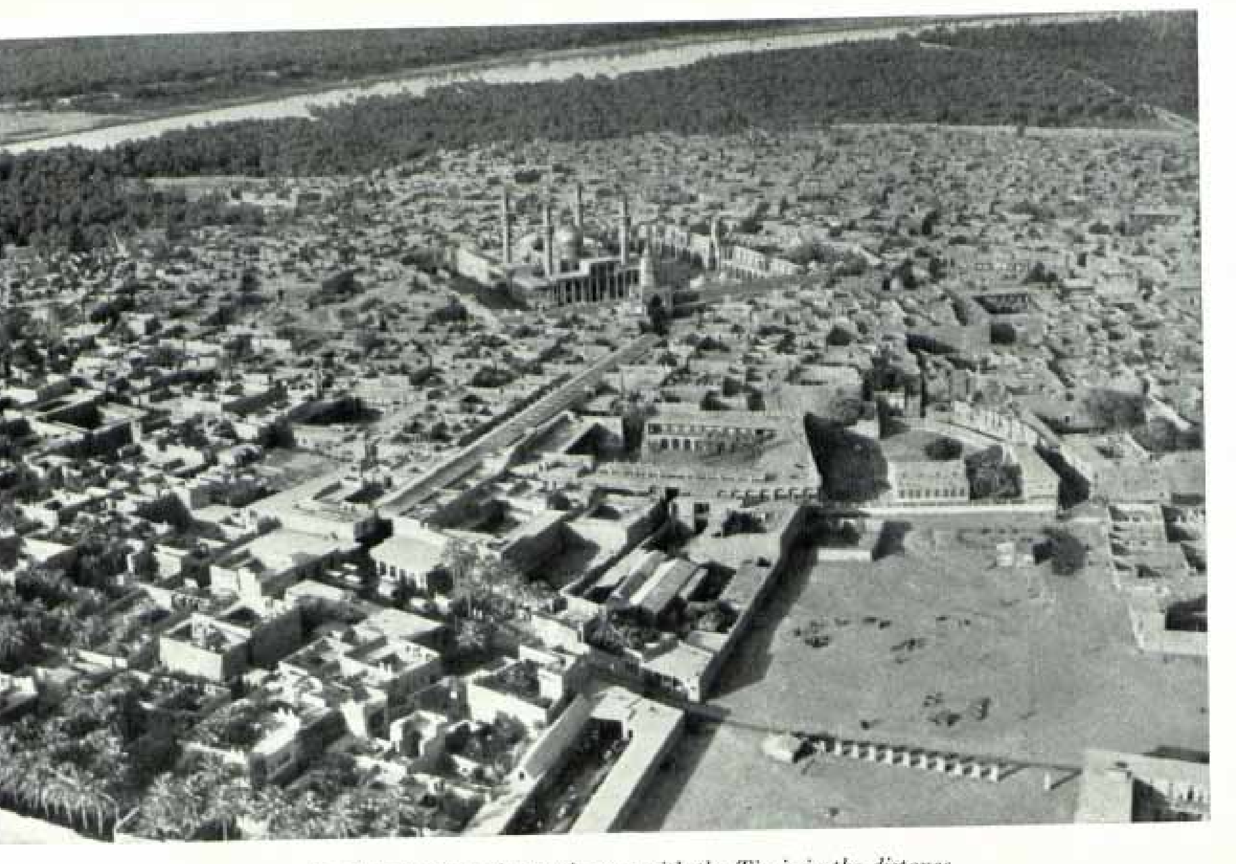
HIT. 33° 39′ N., 42° 50′ E.; alt. *c.* 200 feet. Pop. 6,000. Nahiya cap., Dulaim Liwa.

Hit is a small town on the right bank of the Euphrates about 58 miles in a direct line above Falluja, at the edge of the desert plateau and at the point where the riverain strip begins to widen out as the Euphrates enters its delta. The ground rises slightly to the plateau on the right bank (photo. 205); opposite, the Jazira plain is flat. The town is built on a ruin mound or tel and is famous for its bitumen wells. There is cultivation and a number of walled date-groves with outlying hamlets among them, dependent on Hit. The inhabitants are Sunni Arabs derived mostly from the Dulaim tribe, except for a small colony of native Jews.

The bitumen wells of Hit (*anc.* Is or Id) were exploited in the earliest recorded times. The Egyptian monarch Thothmes III received tribute from them, the Assyrian Tukulti-Enurta II camped near them in 885 B.C., bitumen from Hit was used for the building of Babylon, and the Greek Herodotus (*c.* 425 B.C.) knew of them. The town was sacked during the Roman and Persian wars in the fourth century A.D., when it was at the head of a great dike dug by Sapor II which ran south across the desert plateau for the protection of Mesopotamia against beduin raids. In Abbasid times it flourished as a walled town with a castle, the capital of thirty villages

205. Hit

206. *Kirkuk. Qarwait Kalahiya and the bridge over the Qadha Chai from the citadel*



207. *Kadhimain from the south-west with the Tigris in the distance*

and a rich agricultural region, but its history is purely local. The mound of Hit and others in the locality testify to the continuity of occupation in the neighbourhood.

General Description

The small walled town covers its hill from top to bottom and overflows into the plain at its foot, where there are khans, warehouses, and boat-building yards. There are two gates in the walls, and a broad street divides the hill town from the buildings in the plain. Otherwise streets are narrow and twisting. Houses are of a dark brown colour and usually of two stories.

There is a bazaar of some 100 shops and a police post. Many furnaces for smelting bitumen cover the town with a continual pall of smoke and a characteristic smell of sulphur, from sulphurous springs near by, and of boiling bitumen. There were formerly five bitumen springs or groups of springs, four on the right bank west of the town and one on the left bank. The pitch ebbed out of the largest, spreading into a wide carpet. It is exported for use in surfacing roads, house construction, and boat-building, and is used locally in the boat yards, being smeared upon boat-frames made of tamarisk or mulberry boughs, reeds and straw, and also to waterproof buckets used on water-lifts. A second local industry is the salt-works south-west of the town, and there are quarries at Mamura whence stone was shipped down the Euphrates for building the Hindiya barrage. *Water* is from the Euphrates.

Communications

Water: The Euphrates is navigable downstream to Falluja by vessels drawing not more than 3 feet at all seasons and upstream to Al Qaim, but above Hit the channel is rendered dangerous by the stone piers of water-wheels built out into the stream (fig. 76). A ferry crosses the Euphrates at Hit.

Land: The road [4] through Hit is metalled, but beyond the town it continues unmetalled north-west along the Euphrates to Al Qaim and Syria and south-east to Ramadi. Track north-east across the Jazira to Tikrit. Track west across the western desert to Kubaisa oasis and the pipe-line road [14], which it joins between stations H1 and H2.

Air: Landing-ground about half a mile south-east of town.

KADHIMAIN. 33° 23′ N., 44° 21′ E.; alt. *c.* 112 feet. Pop. 20,000.

Kadhimain, 'the place of the two Kadhim', is a small town almost surrounded by palm-groves on the right bank of the Tigris lying half a mile back from the river, 4 miles north-west of Baghdad, and opposite the suburb of Adhamiya, to which it is connected by a pontoon bridge. Its inhabitants are nearly all Shia Moslems, and include Persians and Indians.

Like Najaf, it consists of a rectangular huddle of houses built around a

great sanctuary which contains the tombs of the seventh and ninth Shia Imams, Musa al Kadhim and his son. A road leads from the Adhamiya bridge to the entrance of the shrine in the centre of the town, which otherwise consists of a maze of narrow alleys, private dwellings, and coffee houses, including some fine tall houses in the Persian style, and a jumble of rather squalid bazaars. The shrine consists of a great mosque with two gilded domes and four lofty minarets, and an open outer courtyard with colonnades on three sides (photos. 142, 207). The seven gates are adorned with pink and turquoise tiles. Non-Moslems may not enter, but a general view is obtained from the east gate, and the sanctuary proper may be seen from the north gate. The actual tombs are in a silver cage within an upper room beneath the domes of the mosque. The whole complex is in the Persian style and is mainly the work of Persian craftsmen and Persian benefactors, particularly those Shahs who held southern Iraq at times between the sixteenth and eighteenth centuries.

The town lives by the pilgrims of whom 20,000 or 30,000 may visit it in Moharram on their way to Karbala and Najaf. A great part of the corpse traffic also passes through. Normal trades include brick and pottery kilns and a small weaving establishment.

Water and electricity are available from the Baghdad system. There is a small hospital (20 beds).

Communications. See Baghdad, p. 505.

KARBALA. 32° 37′ N., 44° 02′ E.; alt. *c.* 95 feet. Pop. 24,000 (resident). Liwa cap. Rainfall station (Rlys.).

Karbala, on the edge of the Western Desert 55 miles south-south-east of Baghdad, is surrounded by gardens, orchards, and date-groves watered by distributaries of the Husainiya canal, one branch of which, the Nahr Hinaidiya, encircles the town on west and south, while the main channel passes north. The cultivated belt is thinnest on the desert (western) side (photo. 208), to the east a series of marshes stretching southwards intervenes between the desert and the Hindiya branch of the Euphrates. The town is approached by road from the south-east through date-gardens. Karbala is the principal holy city of the Shias in Iraq. Of the resident population, over half are Persian by origin or descent, and the remainder Arabs with 2,000 or 3,000 Indians and a few Jews; by religion almost all are Shia. Large numbers of pilgrims visit the town and may swell its population during Moharram to 70,000. Persian is commonly spoken.

History

The history of Karbala is remarkably similar throughout to that of its sister town Najaf. Karbala grew up around the tomb of Husain, the second son of Ali, and other monuments connected with his martyrdom (p. 240)

in A.D. 680. The intolerant Caliph Mutawakkil sought to erase the original shrine by flooding in A.D. 850, but the Buwayhid amir Adud ad Dawlah built a magnificent shrine in A.D. 979. By the fourteenth century a little town some 2,400 paces in circuit surrounded the shrine, and though the quarrels of its factions nearly ruined Karbala at this period, it recovered in Ottoman times by continuous benefactions from Persia and India, such as the Oudh bequest. At times Karbala was dominated by beduin tribes, and in 1801 it suffered a disastrous sack at the hands of the invading Wahhabis, who looted the shrines. The religious leaders, mujtahids (p. 327), like those of Najaf, were ever ready to conspire against the government of Baghdad, whether Ottoman or British, and the town was ever an asylum for political offenders and criminals. Faction fights and mob rule often prevailed, and in 1843 the town suffered its exemplary chastisement by the Turks and a Turkish garrison was installed. In 1915 Karbala rebelled against the Turks and remained aloof from the Turko-British war until the British entered Baghdad. The mujtahids played a great part in the organization of the 1920 rebellion, and of the early opposition to the rule of the Sunni king Faisal.

General Description (fig. 84).

There is an old town with a new town or quarter to the south. The old town, which rises slightly to the north-west, is open on the south but surrounded on the other three sides by a wall of brick 20–30 feet high with some twenty-five towers at intervals as bastions, and pierced by five gates. The streets or lanes are narrow and twisting, and the buildings crowd round the two great shrines, the Sahan al Husain and the Hadhrat al Abbas, which are west and east respectively of the great line of shops, formerly a covered Suq, which forms the principal bazaar traversing the town from north to south. The Sahan al Husain, containing the tomb of Husain, consists of a great courtyard with seven gates and of the Haram or sanctuary proper within it, which has a gilded dome flanked by two minarets. There is a third and larger minaret within the outer courtyard, from which a smaller courtyard juts out. The Hadhrat al Abbas contains the tomb of Abbas, the half-brother and fellow martyr of Husain; its dome is of glazed brick and its minarets are gilded. South-west of the Sahan al Husain on the outskirts of the old town there is the Khaimgah or Khaimehgah, a small building which marks the site of Husain's tent before the fatal battle.

The new town immediately adjoins the old and is laid out in rectangular blocks divided by open streets 20–30 feet broad, running north-north-east to south-south-west and west-north-west to east-south-east. It contains the modern buildings such as the sarai, municipal offices, two schools, a small hospital (80 beds), and police barracks.

Many inhabitants are cultivators in the market-gardens and orchards round the city, and the extensive bazaars have a considerable commerce in

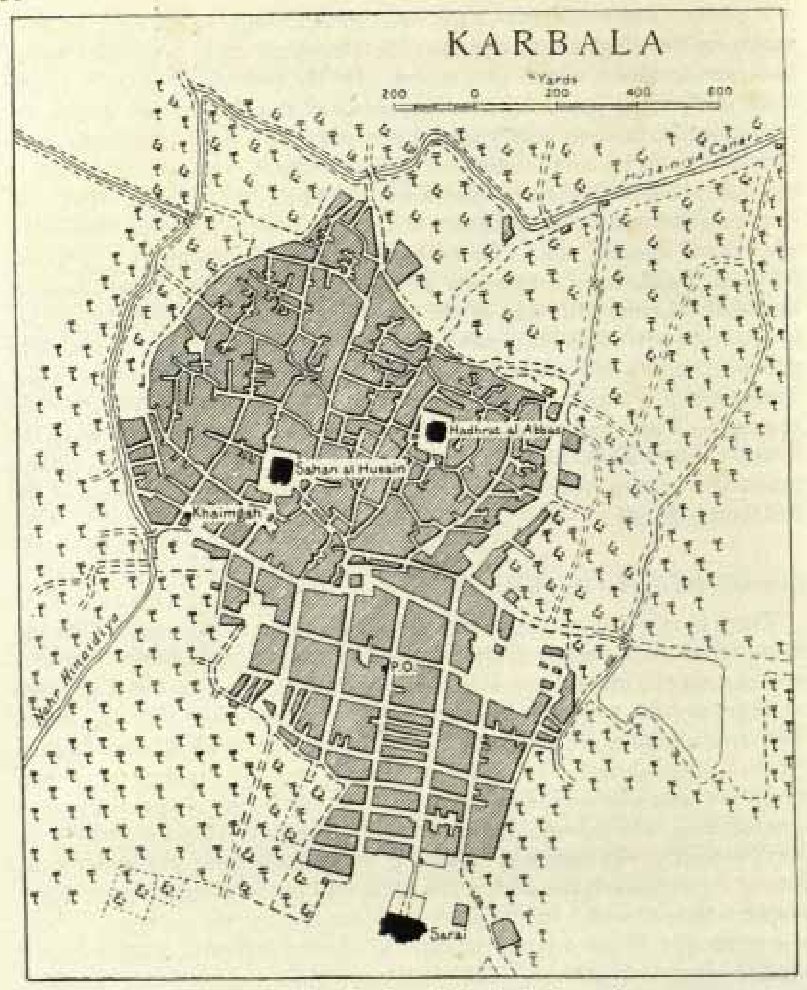
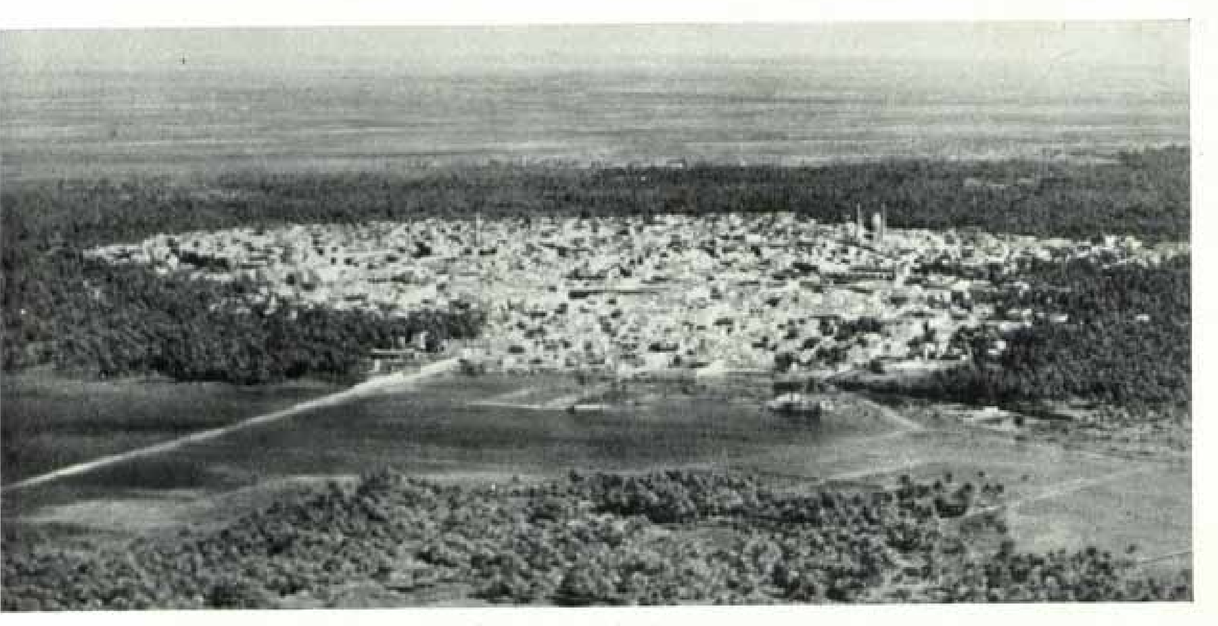
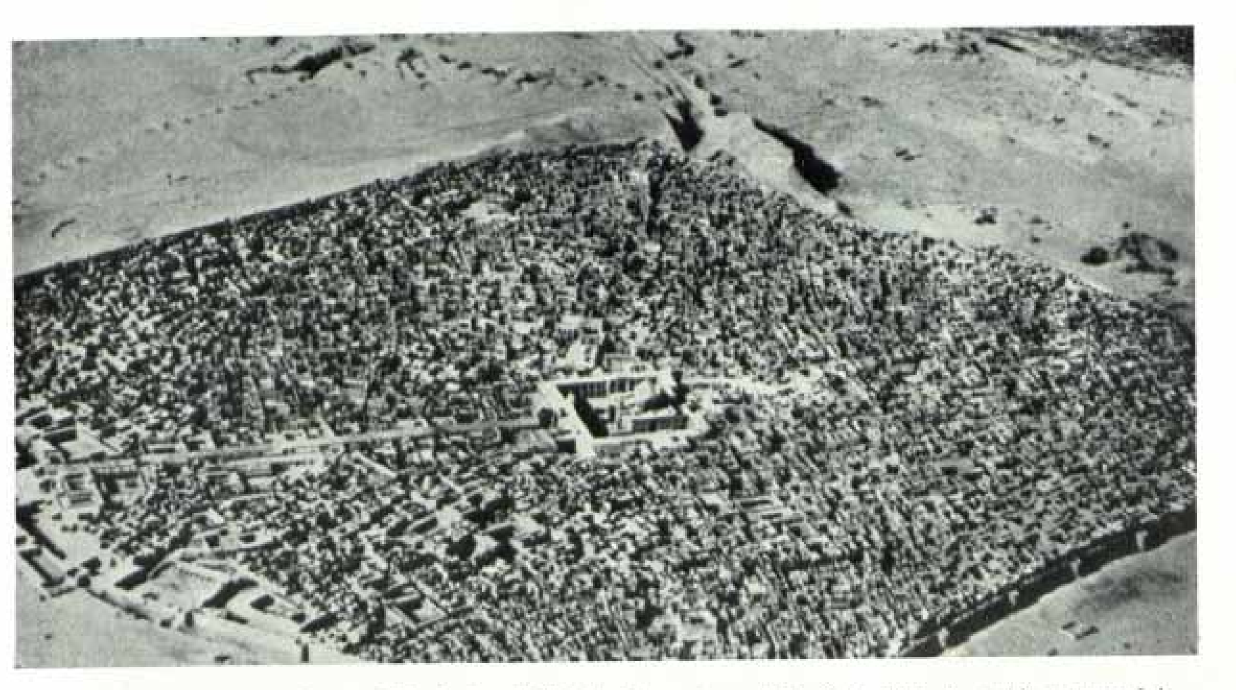


FIG. 84. *Sketch-plan of Karbala in 1918*

normal objects such as dates, skins, wool, and baskets, both local and tribal produce, Karbala being a desert market for beduin Shammar and Amarat and for the shepherd Bani Hasan. As at Najaf much money is also made by the pilgrim and corpse traffic, the khans outside the town often being crowded with coffins of the faithful awaiting burial. The manufacture and sale of shrouds, earth-cakes or *turba* (p. 328), and rosaries are special trades. Very many inhabitants are supported by the charitable endowments of the shrines. The mujtahids are numerous and influential and the madrasas or seminaries are busy, though Karbala is second to Najaf as



208. *Karbala from the south. The dome of Hadhrat al Abbas stands out against the palms*



209. *Najaf from the north-east. The shrine of Ali is in the centre and the Bab al Husain on the extreme left*

a centre of Shia learning. The peak of the pilgrim season is in Moharram month, when the passion play and mourning procession for Husain cause scenes of great excitement. The townsmen are divided into five tribes or wards, Bani Saad, Salalma, Wuzum, Tahamza, and Nasariya. There are many wealthy landowning shaikhly families, such as the Kammuna Zada of Persian extraction, the Arab Awwad, and the much respected Al Baari whose forebears buried Husain. There is a British vice-consulate mainly for the administration of the Oudh bequest, left by the Raja of Oudh in the eighteenth century for the support of the faithful at Karbala and Najaf.

Water is pumped from the Husainiya canal to tanks. Electricity is supplied for lighting by a municipal plant (440 D.C.).

Communications

Rail: A branch-line connects east with the Baghdad–Basra line at Hindiya junction (Rly. 1).

Road: Karbala is a route centre linking desert tracks to the road system of the Middle Euphrates area. Motorable tracks go south [17] to Najaf and Shabicha, west-south-west to Ukhaidhir and Nukhaib [16], following the general line of the Wadi Ubaiyidh, and west to Shithatha oasis: roads [2*c*] north-east to Musaiyib and south-east [2*b*] to Hilla.

Air: Landing-ground 2 miles south-west of the town.

KHANAQIN. 34° 21′ N., 45° 23′ E.; alt. *c.* 660 feet. Pop. 8,000. Qadha cap., Diyala Liwa. Rainfall station (Rlys.).

The town lies among date- and fruit-gardens on both banks of the Alwand (Hulwan) river, 5 miles from the Persian frontier. Most of the inhabitants are Kurds and Lurs with some Arabs, Jews, Persians, and Turks. The town is a base for the Khanaqin Oil Company and is a customs station on the Baghdad–Kermanshah road, which forms the main route for Persian pilgrims visiting the holy cities and carries the greater part of the land trade between the two countries.

In ancient times Khanaqin was a bridge town on the main trade route by the Zagrian gates to the Persian plateau and the Far East (the 'Khorasan road' of the Abbasids), 16 miles south-west of the Sassanid town and palace of Qasr-i-Shirin. It also drew revenues from the naphtha springs in the neighbourhood. It has suffered continual inroads since the weakening of the Abbasid power, from the descent of Hulagu on Iraq to the incursions of the Persian Safawids and the arrival there of the Russians in the present century, during the War of 1914–1918, when it suffered greatly from their ravages, from Turkish reprisals, and from famine.

General Description

The plain around Khanaqin is watered by numerous irrigation canals, and there are many pleasant gardens around the town where dates, lemons,

pomegranates, and figs are grown. The town itself lies mainly to the east of the river, which is here 60 yards wide and fordable although also crossed by a good bridge. It has grown much in recent years, the newer quarters being occupied by workers from the oil-wells of Naft Khaneh, 30 miles south of the town. There are a sarai, 10 large khans for pilgrims, a quarantine station hospital (12 beds), civil hospital (12 beds), and about 450 shops. The Rafidain Oil Company has a large depot in the railway yard at the north end of the town, supplies being piped direct from the K.O.C. refinery at Alwand, 3 miles south-east of the town. Electricity is supplied by government licensees.

Supplies of barley and wheat, fruit, sheep, and goats are plentiful. *Water* is obtained in unlimited quantities from the Alwand river and from canals. There is good grazing in the neighbourhood. Very large quantities of petrol, kerosene fuel oil, and crude oil are stored by the Rafidain and K.O.C.

Bajlani are the principal settled tribe in the Khanaqin district, which is also visited by Persian Kalhurs; some of the neighbouring inhabitants are Ali Ilahis (p. 329).

Communications

Rail: Khanaqin is the terminus of the metre-gauge branch from Jaloula (Qaraghan) of the Baghdad–Kirkuk line (Rly. 2).

Road: Tarmac road [7] north-east to Qasr-i-Shirin and Kermanshah in Persia, and south-west to Shahraban (Muqdadiya) and Baghdad is passable at all seasons. Partly metalled road south to Naft Khaneh and Mandali. An unmetalled cart-road north to Chia Surkh.

Air: There is a permanent landing-ground about half a mile from the station on the way to the refinery.

KIFRI. 34° 42′ N., 44° 58′ E.; alt. *c.* 750 feet. Pop. 3,000. Qadha cap., Kirkuk Liwa.

Kifri or Salahiya lies in a plain, in the mouth of a gorge in the 300–400-foot Kifri Dagh which lies to the north, through which the Kifri Su emerges. The town stands on the right bank; the cultivated plain extends for a few miles to the south and east and about 10 miles to the north-west. The inhabitants are Turkomans and Kurds with some Arab elements. Turkoman and Kurdish tribes, including Baiyat, Zangana, and Jaf, inhabit the surrounding country. The houses are of stone, gypsum, or mud with flat roofs. There are khans, a police barracks, and a fair-sized bazaar.

There are gardens of fruit-trees close to the town. Wheat is grown, and there is usually very good grazing in the neighbourhood between December and May. Sheep and goats are plentiful. Good and abundant *water* is obtained from the river, which is liable to violent floods.

Seven miles south-south-west of Kifri lie the village and railway station

of Eski Kifri (Kingerban station) and the remains of an ancient city where Arsacid, Sassanid, and early Islamic relics have been found. There are coal workings near the village of Komar Daghi about 2 miles east of Kifri, and the neighbouring hills are rich in salt and sulphur.

Communications. Eski Kifri station is on the metre-gauge Baghdad–Kirkuk line (Rly. 2). Kifri is a route centre for minor unmetalled roads and tracks leading west and south to the Baghdad–Jaloula–Kirkuk road, and north-north-east to Qaradagh and Sulaimaniya.

KIRKUK. 35° 28′ N., 44° 24′ E.; alt. *c.* 1,000 feet. Pop. 40,000. Liwa cap. H.Q. Eastern Army Command and Army divisional H.Q. Rainfall station (I.P.C., and Rlys.).

Kirkuk lies on both banks of the Qadha Chai in a wide fertile basin beneath the Kani Domlan range. The principal element of the population is Turkoman, though Arabic and Kurdish are both spoken. The town is the seat of a Chaldean archbishop and there are also Gregorian Armenians, Syrians, and numerous Jews.

History

The town of Arrapha existed here in the earliest historical times and was a dependency of the Assyrian Empire, but as Corcura it was of very minor importance in Parthian times. Later it became an important see of the Eastern Church in Sassanid and Abbasid times and loomed large in martyrology. A mound, the scene of martyrdom, outside the town, is named after the chief Sassanid persecutor of the Christians, Tamazgird of the time of Yazdagird I. The foundation of Turkoman Kirkuk belongs to the period of the post-Abbasid invasions. It was a fine city by the sixteenth century and was occupied by the Persian Safawids in 1624–1625 and again a few years later. Up to the eighteenth century it was largely independent of the Vali of Baghdad and was the capital of the so-called Sanjaq of Shahrizor, but was loyal to the Turks and stood out against the renewed Persian menace of Nadir Quli in 1732. The plain of Leilan to the south-east was the scene of a battle in which Othman the Lame was defeated by him in 1733. Ten years later Nadir Quli subdued the town in spite of gallant resistance. From the end of the eighteenth century it began to decline, and it was further reduced by plague in 1830. Its history has been that of a trading town and of a garrison city from which sallies were undertaken into the Kurdish mountains to the east. The British occupied Kirkuk first in May 1918. In recent years the development by the I.P.C. of the Kirkuk oilfields (p. 494) has greatly increased the importance of Kirkuk, though the number of persons engaged in the business is relatively small.

General Description (photos. 29, 206)

The town is divided in two by the broad pebbly bed of the river, which is crossed by a stone bridge of fifteen arches. The core of the old town on the

left bank is the citadel (Qala) built on a walled tel or ruin-mound which rises 130 feet above the plain. It contains a compact mass of flat-roofed houses built of stone and *juss* mortar, divided by narrow alleyways; beyond the walls the houses have spread on to the flat land by the river. The only traffic-road skirts the town northwards from the bridge along the river bank. The citadel contains several mosques, two arched bazaars, and a Christian cathedral. The 'new town' or Qarwait Kalahiya on the right bank is also closely built, but is penetrated by two main thoroughfares, the Fat-ha road which runs west from near the bridge, and the road north-west to Baba Gurgur, the headquarters of the oilfields. The modern buildings in Qarwait Kalahiya include the Sarai, the Customs House, army and police barracks and jail, two hotels and the Iraq club, schools and hospitals (civil 75 beds, jail 15 beds, isolation 15 beds). There is also a public library and a bank. West of Qarwait Kalahiya, near the railway station, a new quarter has arisen, containing the houses of officials and the I.P.C. headquarters; numerous hutments have been erected for workers and the town continues to expand, but the main workshops, plant, and residential area of the I.P.C. are in the 'locations' around Baba Gurgur, 4 miles to the north-west, the starting-point of the Kirkuk pipe-line.

There is a municipal electric lighting plant (45 kW.), and *water* (unchlorinated) is pumped from the Qadha Chai at a point 3 miles north-east of the town to a tank of 15,000 gallons capacity 1 mile outside the town; the I.P.C. locations have a separate installation at Dibis on the Little Zab which provides chlorinated water up to 200,000 gallons a day.

Kirkuk stands among gardens, orchards of limes, olives, figs, apricots, and vineyards. There are supplies of wheat, barley, fruit, and vegetables, and some cotton is grown. The chief exports apart from petroleum are wool, wheat, barley, fruit, gallnuts, and gum from the Qaradagh region, and great numbers of sheep, goats, and cattle. But the chief occupations, apart from oil production, are those of mercers and drapers, Kirkuk being a distributing centre for Kurdistan. Woollen textiles, felt for coats, cotton materials, and pottery are produced. There are also two ice plants and five soda-water factories.

Communications

Rail: The town is the terminus of the metre-gauge railway from Baghdad (Rly. 2).

Road: A tarmac road [6] north to Altun Kopru, Erbil, and Mosul with an alternate unmetalled route west of the Kani Domlan to Altun Kopru. Tarmac road [6] south by the Injana pass to Baghdad with an alternative route by Jaloula and the Diyala. Tarmac road [8] east by Chemchemal and the Bazian pass to Sulaimaniya and Penjwin. Unmetalled dry-weather road [14] parallel to the pipe-line west to Fat-ha, Haditha, and Transjordan. There is a good road network round the oil locations.

Air: Airfield and wireless station 1 mile west of Kirkuk and I.P.C. landing-ground 5 miles away near Pumping station K1.

KUT AL IMARA. 32° 30′ N., 45° 50′ E.; alt. *c*. 62 feet. Pop. 9,000. Liwa cap. Rainfall station (P. and T.).

The town stands on the left bank of the Tigris in a bend of the river opposite the divergence of the Shatt al Gharraf. Fringed by gardens and date plantations, it is the centre of a considerable grain trade and a river port. Its population contains two main elements, Arabs and Faili Lurs, both Shia, and certain number of Jews.

History

In the early Abbasid period Madharaya was a prosperous town near Kut (p. 49), controlling the confluence of the great Nahrwan canal with the Tigris, but with the change of the Tigris' course to the Shatt al Gharraf the town decayed. When the Tigris took its present course a settlement grew up again, but modern Kut owes its rise mainly to the development of steam navigation on the Tigris during the nineteenth century. It was, however, never more than a qadha capital during Turkish rule. It was the scene of a British disaster in 1916 (p. 279) and was recaptured in February 1917 after much damage had been done to the town. It has recently been given added importance by the construction of a barrage across the Tigris (p. 439).

General Description

Kut was almost entirely rebuilt after its reoccupation in 1917, and has wide streets. There is a river frontage occupied by wharves, and the principal buildings are the sarai and municipal offices, a police barracks, two small schools, the civil hospital (75 beds), and grain stores. The new and prosperous arcaded bazaar of 400 shops is on the river front. The town is a market for cereals which are transported up the Gharraf to Kut and thence down the Tigris to Basra, and for local vegetable produce; it is also a collecting centre for liquorice, which is exported abroad. Local crafts include the making of rugs and carpets. There is a liquorice factory on the right bank, and there are ice and soda-water plants. Such of the inhabitants as are not traders are cultivators, and the Faili Lurs are porters. There is a local caravan trade with Badra on the Persian border. *Water* is supplied unchlorinated by a municipal plant; the electric lighting plant is also municipal.

Communications

Rail: Kut is the terminus of the new branch-line north-west to Jassimiya near Baquba (Rly. 3), built to supplement the devious and slow water route.

Road: The Tigris is bridged by the Kut barrage which takes the Gharraf

road south to Nasiriya [3]. Track north across soft ground to Badra and Mandali. Unmetalled main road [1] east to Ali Gharbi whence south-east to Amara and Basra; and north-west to Aziziya and Baghdad [1].

Water: River steamers and native craft use the Tigris north to Baghdad and south to Basra; in flood season native craft formerly used the Gharraf south to Shatra. Details of navigation since construction of the Kut barrage are not available.

Air: Landing-ground 2½ miles north of the town.

MANDALI. 33° 45′ N., 45° 33′ E.; alt. *c.* 350 feet. Pop. 8,000. Qadha cap., Diyala Liwa. Rainfall station (P. and T.).

Mandali, 72 miles east-north-east of Baghdad, lies on ground sloping gradually down from the foot of Jabal Sambar on the Persian border on the north-east, to the Tigris flood plain, and between the Ab-i-Naft to the west and the Gangir stream to the east. The region is irrigated by a channel from the Gangir. Mandali is the principal settlement of a cultivated tract along the Persian border, and controls a secondary trade route into Persia. Its inhabitants are non-tribal and of mixed origin, Turkomans, Kurds, Lurs, with a few Persian merchants and Jews, and the Moslems are both Sunni and Shia, including some Ali Ilahis.

It is uncertain whether Mandali is to be identified with the prosperous Abbasid town of Bandanijin, capital of the same cultivated region, but throughout Ottoman times Mandali was a place of economic and strategic importance, liable to Persian invasions and border raids. In 1743 one of Nadir Quli's columns entered Iraq by the Gangir valley and took Mandali, and the Persian invasion of 1822 also used this route. The town was occupied by the British in September 1917. Since 1918 cultivation has suffered seriously by the attempted monopolization of the Gangir water on the Persian side of the frontier.

Mandali is a mud-brick town of some 2,000 houses somewhat scattered and relatively open, surrounded by date-gardens. The streets are narrow, and often bordered by the mud walls of enclosures. Oil seepages in the locality used to be worked by native methods; the nearest modern workings are at Naft Khaneh. There is a pumped supply of *water* and a small hospital of 5 beds.

Communications

Land: Unsurfaced route west to Baquba and Baghdad. North to Naft Khaneh and Khanaqin. Ancient caravan route north-east into Persia, eventually joining the main road to Kermanshah. Unsurfaced route south-east to Badra and Kut al Imara.

Air: Landing-ground near the town.

MOSUL. *See* p. 517.

NAJAF. 31° 59′ N., 44° 19′ E.; alt. c. 120 feet. Pop. 42,000. Qadha cap., Karbala Liwa.

Najaf or Mashad Ali, 'the martyrdom of Ali', on the desert fringe 7 miles west of the Euphrates and 48 miles south-south-east of Karbala, is built on a ridge (Najaf) of reddish sandstone gravel overlooking the marsh called Bahr Najaf from the north-east, 40 feet below the ridge. The Bahr, which is dry towards the town and contains several date-groves and market-gardens, forms a green valley by contrast with the desert plateau. The Hamadiya canal passes along the foot of the ridge. Najaf is one of the principal shrines of the Shia world. Of its native population a quarter are Persian and three-quarters Arab, apart from a few thousand Indians; all are Shias, except a very few government officials. In addition a large number of pilgrims are usually present (photo. 209).

History

Najaf contains the tomb of Ali, founder of the Shia faith (p. 240). The first shrine was built, according to Arab chronicles, by the Caliph Harun ar Rashid in A.D. 791, who discovered the neglected site while out hunting, though an alternative tradition located the burial place of Ali in the Great Mosque of Kufa. It was only in the tenth century that a town grew up around the shrine under the favouring influence of the Buwayhid dynasty (p. 245), several of whom were buried in Najaf. The splendours of the shrine seem to date from the Il Khan domination and the revival of Persian influence during the Ottoman period. Najaf, like Karbala, was a lasting temptation to the more aggressive Shahs and benefited from their eruptions into Iraq. The town suffered much from the raids of Sunni beduin tribes, which culminated in the great Wahhabi raid of 1810 (p. 262). Under the leadership of the religious leaders or mujtahids (p. 327) and of the kiliddar, or guardian of the shrine, Najaf enjoyed virtual independence from Turkish rule and even sided with the Persians; it was also continuously disturbed by the riots of the two factions of the populace, the Shumurd and Zugurt. Twice, in 1843 and 1854, the Turks took strong measures for its chastisement after outbreaks of revolt, but the town remained immune from military conscription until an attempt to enforce it in 1915–1916 caused a rebellion, in the suppression of which the shrine was damaged. A British political officer was murdered there in 1918, and the town was a centre of anti-British activity during the Arab rebellion of 1920 and later of the opposition to King Faisal.

General Description

The town is roughly rectangular and was fortified by walls 30 feet high, now decrepit, strengthened by rounded bastions and a moat. There are two gates in the eastern wall, Bab al Husain (the main gate) and Bab al Kufa, a third on the north-east, and a fourth, Bab Murad, on the south-west. A

fifth ungated entrance, Thilmak, breaks the west wall. Recent alterations have created an open square on the site, apparently, of Bab al Husain. The whole area is built up and is crowded by five or six thousand brick and mortar houses and shops of relatively recent date, with the shrine of Ali in the centre. A thoroughfare runs from Bab al Husain through the main bazaar to the shrine, and a new boulevard was being planned before 1939, but the rest of the streets are a maze of narrow alleys, often overhung by oriel windows. The town is divided into four quarters, Amara, Huwaish, Buraq, and Mishraq, and contains some seventy khans for the reception of pilgrims. The houses have deep sirdabs (p. 349) descending to two or three stories and interconnected by passages, some of which have exits outside the town. This system of catacombs provides excellent retreats for political suspects and criminals. The municipal offices are at Bab al Husain. The old sarai is in the main bazaar and the old Turkish military barracks in the north-east quarter; but the modern sarai and police barracks lie outside and south-west of the town near the tram terminus. Three small schools, a municipal hospital (35 beds), and several khans are outside the town. Extensive cemeteries fringe it on the north and east.

The shrine of Ali consists of a great rectangular enclosure, within which stands the two-storied sanctuary containing the tomb, with a great dome roofed with gilded tiles. The minarets likewise are plated in gold which reaches almost to the ground. Infidels are not admitted.

The population depends for subsistence mainly on charitable bequests, on functions connected with the pilgrim traffic and on the cemetery trade, great profits being made by the sale of graves, and there are numerous students at the seminaries or madrasas. The bazaar trade is mainly in transit goods, Najaf being a beduin market and collecting centre for wool and skins of sheep and camels. Local crafts include the making of fine silk mantles (*aba*, pp. 345–6), pottery, and jewellery.

Water is pumped from the Euphrates at Kufa by pipe to a storage tank of 400,000 gallons built on steel piles 30 feet high, on the south side of Najaf, and distributed, filtered but not chlorinated, from a second tank, which is lined with taps, by skins to water-carriers. The numerous wells in the town provide washing but not drinking-water. *Electricity* for lighting is supplied by a simple plant in the old barracks (45 and 55 kW.).

Communications

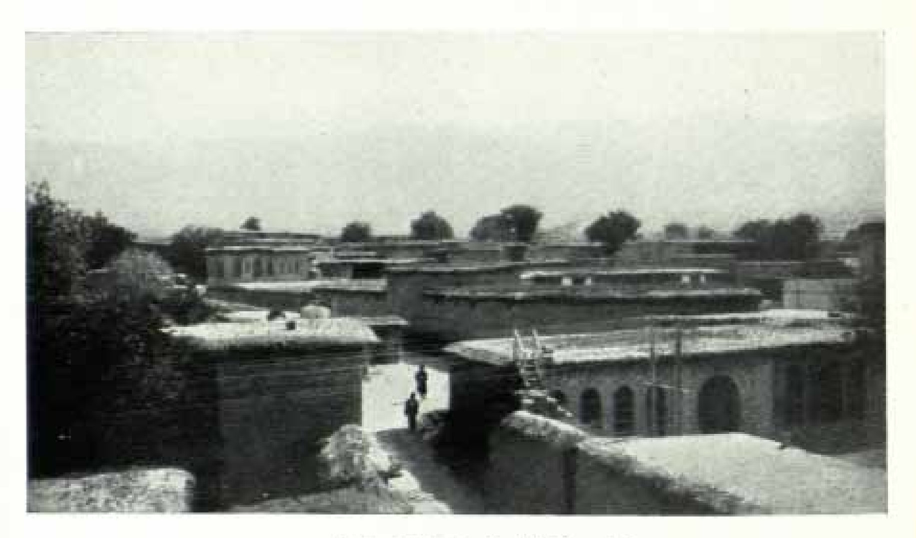
Road: Unmetalled roads north to Karbala [17]; north-east to Kufa and Hilla [2*a*] (crossing the Euphrates channels by floating bridge at Kufa and Muchatim); south-east to Abu Sukhair and thence east to Diwaniya. Tracks south [17] to As Sichr, near Sabicha, following the old Pilgrim Route or Darb Zubaida to Mecca, and north-west to Shithatha oasis. There is an ancient horse-tramway to Kufa.

Air: Landing-ground 4½ miles north-east of Najaf near Kufa.

210. *The walled town of modern Samarra from the south, with the ruins of Abbasid Samarra and the Malwiya tower beyond*



211. *The Euphrates at Nasiriya*



212. *Private houses in Sulaimaniya*

213. *The upper part of Ruwandiz town from the air*

NASIRIYA. 31° 02′ N., 46° 16′ E.; alt. *c.* 15 feet. Pop. 18,000. Muntafiq Liwa cap.

The town lies on the left or north bank of the lower Euphrates approximately 110 miles north-west of Basra, and 85 miles by river below Samawa. It is an agricultural and desert market centre, and controls a bridge across the Euphrates. Three-quarters of its population are Shia Arabs. There is a small Sabian community and some Persians and Jews.

Nasiriya was founded by Nasir Sadun Pasha, the paramount shaikh of the Muntafiq confederation who accepted office under the Turks and carried out the anti-tribal and agrarian policy of Midhat Pasha (1869–1873). This caused many local wars of the tribal fellahin against their landlords. In 1914 the principal shaikh, Ajaimi al Sadun, raised a tribal force to assist the Turks against the British (p. 274). Ali Beg, the Turkish commander, retreated after the battle of Shuaiba to Nasiriya, which was captured by the British under General Gorringe in July 1915.

General Description

The town, around which there are many date-gardens, is surrounded by a dilapidated mud wall 8 feet high in which are built nine defensive posts. Gates on the north, south, and west give access to the town. There is a river frontage of over half a mile (photo. 211); the town, protected by extensive *bunds* from floods, is connected to the right bank by a pontoon bridge. The majority of the 2,000 houses are built of burnt or sun-dried brick. The streets are broad and straight, cutting each other at right angles, and most of them are passable for traffic. There is a large sarai in the centre and a big fortified police barracks (300 × 200 ft.) on the northern side of Nasiriya, which also contains four schools, the Maude Memorial hospital (100 beds), and an isolation hospital (25 beds). Nasiriya is the centre of a relatively wealthy agricultural and pastoral region. Large stocks of grain—wheat, barley, rice and maize—and also of dates are normally held in the town; vegetables are available in season, and the shepherd tribes of the region keep great flocks. *Water* is supplied, unfiltered and unclean, by a municipal pumping station, and electricity by a municipal plant (40 kW.).

There is a bazaar which is frequented in season by Dhafir beduin, and the Sabians ply, in a quarter of their own, their special crafts as silversmiths, carpenters, and builders of river craft. A local *bellum* of 10 tons burden is much in use.

Communications

Rail: The station on the south (right bank) above the town is the terminus of a branch-line connecting at Ur junction with the Baghdad–Basra line (Rly. 1) (p. 591).

Road: Unmetalled road [3] north by Shatra to Kut al Imara. Unmetalled road east to Albu Salih and Hammar villages, and east-south-east

to Suq ash Shuyukh. Unmetalled road [2] south-east by Jaliba to Shuaiba and Basra. Desert tracks [19] south to Busaiya and south-west to Salman. Unmetalled road [2] north-west to Samawa.

Water: Native craft and launches can use the Euphrates upstream to Hit and downstream by the Hammar lake to Basra; passage is restricted or impossible at times of low water.

Air: Landing-ground near the railway station.

RAMADI. 33° 26′ N., 43° 18′ E.; alt. *c.* 190. Pop. 7,000. Dulaim Liwa cap.

Ramadi is a small town on the right bank of the Euphrates 8 miles north of Habbaniya lake, between the Habbaniya escape channel and the Aziziya canal. A cultivated district, including many palm-groves, extends east of the town. The inhabitants are mostly Sunnis and include many settled Dulaim tribesmen and a Jewish colony.

There were settlements in the neighbourhood in ancient and Abbasid times, but the modern town was founded by Midhat Pasha (1869) to encourage the settlement of the Dulaim tribe. It became a garrison town in 1878 and later the centre of a qadha, and after 1918 of a liwa, though it is by no means the principal of the upper Euphrates towns. The development of the desert traffic to Syria and Palestine by Rutba has increased its importance, and Dulaim shaikhs have their houses in it. There is a sarai and Customs house, a bazaar of 150 shops, a hospital (50 beds), and a desert police post. The river is crossed by a flying ferry 1½ miles north of the town. *Water* is from the Euphrates, and there is electricity from a municipal plant.

Communications

Water: The Euphrates is with difficulty navigable by launches upstream to Hit and downstream to Falluja.

Road: Track across the Jazira north by a line of wells to Samarra on the Tigris. Tarmac road [4] east to Falluja and Baghdad, and west to join the Baghdad–Rutba road 11 miles outside Ramadi. Road mostly unsurfaced [4] north-west to Hit and Abu Kemal (Syria).

Air: Landing-ground one-quarter of a mile south of the town.

RUWANDIZ. 36° 37′ N., 44° 33′ E.; alt. *c.* 3,000 feet. Pop. 7,000. Qadha cap., Erbil Liwa.

The town is remarkably situated on a narrow tongue of rock that slopes down from the Bejan Dagh (Shakh-i-Kurrek) between the gorges of the Rubar-i-Ruwandiz and the Rubar-i-Handren, narrows to 100 yards, and ends in a small plateau above the gorges. It is 42 miles north-east of Erbil and 80 east-north-east of Mosul. The population consists chiefly

of Kurds with some Christian traders and artisans. It is a place of strategic importance on the route to Persia (photo. 213).

History

Ruwandiz was in the fifteenth and sixteenth centuries a town of the Ardalan dominions, being the centre of a semi-independent principality. Lying in a country as wild as Hakâri, it was but faintly penetrated by the Turkish administration, and the various petty aghas of the neighbourhood have been habitually engaged in tribal wars. In 1826 a great ruler arose in Mohammed Khor, a half-blind Beg who succeeded in dominating the local tribes and in extending his rule to the Little Zab and Erbil, and in 1833 to Aqra, Amadia, and Zakho. After his fall Ruwandiz shrank again to a local fief.

During the War of 1914–1918 Ruwandiz suffered severely from the advance and subsequent retreat of the Russians through the Ruwandiz gorges; numbers of the population of all ages were massacred and thrown over the cliff, the town itself being burnt. These atrocities, followed by a Turkish reoccupation, famine, and an epidemic of Spanish influenza, reduced the population to a quarter of its original strength. Ruwandiz was occupied by the Surchi tribe during the disturbances of 1920 and in 1923. Its recent history has been much troubled by a blood feud between the families of its two principal aghas.

General Description

The town is long and straggling. It comprises an upper and a lower part. The upper town, built on a steep slope which flattens out into a plateau on top, consists of simple mud or stone huts not very closely built and a few larger houses with gardens. The rebuilding of the lower town was only begun after the construction of the Erbil–Ruwandiz road. Two massive but dilapitated forts built by Mohammed Khor guard the approach on either bank of the Rubar-i-Ruwandiz. The canyons of the Handren and Ruwandiz are crossed by two bridges, one modern, and a road leads through the town from bridge to bridge. Though a market town, Ruwandiz is not a great storage centre for foodstuffs. *Water* is conveyed by pipes from mountain springs. There is a very remarkable spring at Jindian, which flows and ceases irregularly several times a day. Trade consists chiefly of the transit of goods and of the marketing of such local products as gallnuts, wool, goats' hair, raisins, and tobacco. A local Kurdish newspaper is printed in the town.

Communications

Land: Access to the town is by a branch from the metalled road [9] from Erbil through the Ruwandiz gorge. Tracks lead north to Diana and up the Balikian valley to Baradost country. Metalled road [9] east by the Ruwandiz valley to Rayat and the Persian border, continuing eventually to

Tabriz. A track leads east, following the south bank of the Rubar-i-Ruwandiz, and using its tributary valleys, to Dergala and Walash. Another follows the Rubar-i-Handren valley south-east across the watershed to the Rania plain and Rania.

Air: Landing-ground at Diana, 4 miles north of Ruwandiz.

SAMARRA. 34° 11′ N., 43° 52′ E.; alt. *c.* 213 feet. Pop. 4,700. Qadha cap., Baghdad Liwa. Rainfall station (Rlys.).

Samarra lies close to the left bank of the Tigris 66 miles north of Baghdad and 30 miles south-south-east of Tikrit in the rolling plain which extends to the foot of the Jabal Hamrin. It is one of the holy cities of the Shias. A large number of the inhabitants are apparently Sunnis; there are some Jews and a Persian community.

Samarra was a small town from Assyrian to Sassanid times. The army of the Emperor Julian halted there on its retreat from Ctesiphon in A.D. 363 and the emperor died near the town. At the beginning of the ninth century there was little left save a Christian monastery. In A.D. 836 the Caliph Mutasim moved his capital from Baghdad to Samarra (p. 244), and in the next thirty-seven years a great city was built stretching along the Tigris for 16 miles, mostly on the left bank, and including palaces, mosques, and extensive quarters for the troublesome Turkish guards. Additional canals were drawn off the Tigris to render possible the cultivation of the desert on both banks, where magnificent gardens were established. But after 892, when the Caliph Mutamid restored the court to Baghdad, Samarra quickly fell into decay.

General Description (photo. 210)

The present town is about 400 yards from the river bank in an arid plain, only scantily cultivated for wheat and barley although its soil is rich. The deep river is crossed by a ferry and the banks are steep and high. The plain and the banks of the Tigris are strewn with ruins of the older Samarra, the city of the Abbasids. The modern Samarra is surrounded by a high crenellated polygonal wall with fifteen sides and a semicircular bastion at each salient angle and pierced by four gates, north, south, east, and west. The city is clean and open, and there is much empty space within the walls. But the streets are narrow alleys except for a thoroughfare bisecting the town from north-east to south-west. The houses are mostly of brick. It is built round the principal mosque, containing the tombs of the Imams. The tenth and the eleventh lie under a fine tiled dome of Persian design, while a smaller gilded dome covers the cleft into which the twelfth Imam (Imam Mohammed) is supposed to have vanished and from which he is expected to reappear to establish the true faith on earth. There are a hospital (20 beds), police barracks, and law courts. Melons and vegetables are the chief exports. A municipal pumping station supplies unchlorinated

water, with a reserve of 10,000 gallons. The ruins of old Samarra are described on p. 636.

Communications

Rail: Samarra station, on the right bank, is on the Baghdad–Mosul standard-gauge line (Rly. 4). There is a branch to the river ferry.

Road: Unmetalled road [5] on right bank north to Mosul, south to Baghdad. A track follows the left bank north to Tikrit and south-east to Diltawa. A desert track crosses the Jazira south-west to Ramadi. The river is crossed by a boat and cable ferry which accommodates light cars.

Water: Large sailing-boats and shallow-draught steamers can ascend to Samarra except in flood time.

Air: Landing-ground near the railway station.

SULAIMANIYA. 35° 33′ N., 45° 26′ E.; alt. *c.* 2,750 feet. Pop. 20,000. Liwa cap.

Sulaimaniya, lying on the lower slopes of the bare Azmar Dagh between two spurs, is the centre of the rich and well-watered agricultural district of the Av-i-Tanjero valley. It has a hinterland of wild mountains of which Pir-i-Mukurun, 20 miles to the north-west, is a prominent landmark reaching nearly 8,600 feet. The inhabitants are mainly Kurdish with some Jews and Christians, but Persian is understood. Winters are very cold with snow lying sometimes for two months; in summer the east wind is very relaxing.

History

There was an earlier town of considerable antiquity on the site of Sulaimaniya, but the present town dates from 1781, when it was begun by the Baban prince, Mahmud Pasha, who had in 1779 moved his headquarters from the hill town of Qala Chulan. The town was named after Sulaiman the Great, the Pasha of Baghdad when it was built. It lay on the marches between the lands under full Turkish and Persian control, and its history was enlivened by the intrigues and meddlings of the quarrelsome Babans and their Persian and Turkish sponsors. One of the princes, Abd ar Rahman Pasha Baban, kept up a running fight from 1789 to 1813 and was ejected three times in favour of his relatives, but in 1813 he was in power again at Sulaimaniya when he died. The power of the Babans decayed from then on, though the family still exists, and in 1850 a Turkish governor and a garrison were installed. Hitherto the commerce of Sulaimaniya had flourished, especially through an agreement whereby it handled most of the trade of the Jaf tribe, and by trade with Persia. But after 1850 a shaikhly family gained influence until their leader Shaikh Said dominated the town and by his exactions half ruined it. In 1881 the townsfolk called in the Hamawand against him, but they were expelled by Turkish troops, and Said remained in control until he became embroiled with the Turkish

authorities and was murdered by a mob in Mosul in 1909. His family retained much power, and its most notable member in recent times has been the Kurdish nationalist leader Shaikh Mahmud (p. 307).

General Description (photo. 212)

The town, which is unwalled, has a fine open square in its centre, and though many streets are narrow, the main thoroughfares are wide enough for motor traffic. Most of the 3,000 houses are flat-roofed, mud-brick buildings, some standing in walled compounds and amid gardens, and the more substantial being on the north-western outskirts. The principal secular buildings are the sarai and municipal offices, the army barracks on the north-western edge of the town, and three schools. There are two small hotels and several khans, a civil hospital of 84 beds and a military hospital of 25 beds, a fine bath, and a vaulted bazaar. Besides the usual mosques there is the shrine of Kaka Ahmad, founder of the shaikhly family of Said.

A great part of the population are peasants, but the town contains a wealthy commercial class and is the market for the cereals (wheat, barley, and rice) of the Tanjero valley, and for the various products of the mountain regions, such as gum, skins, gallnuts, tobacco, cotton, honey, dairy produce, and raisins. Local crafts include shoe- and saddle-making, but the former industry of hand-made rifles seems no longer to flourish. There is a soda-water factory.

Electricity for lighting is provided by a municipal plant (25 kW.). *Water* is supplied by karez to a 60,000-gallon tank on the north-east of the town, from which it is distributed through the town by twenty-four karezes running from north-east to south-west.

Communications

Land: Tarmac road [8] west to Chemchemal and Kirkuk. Metalled road [8] east to Penjwin and to Hamadan in Persia, with a branch [8 *c*] south to Halabja. Mountain tracks radiate north-west up the Tanjero valley to Dukan on the Little Zab [8 *a*] and thence to Rania, north-east to Choarta, and south-south-west [8 *b*] to Qaradagh and Kifri.

Air: Landing-ground south-west of the town.

TEL AFAR. 36° 22′ N., 42° 27′ E.; alt. *c.* 1,500 feet. Pop. 19,000. Qadha cap., Mosul Liwa.

Tel Afar is 40 miles west of Mosul on the broad saddle between Jabal Sinbar to the south-east and Jabal Sasan to the north-west overlooking the Jazira plain and the headwaters of the Wadi Tharthar. It controls the direct route from Mosul through the northern Jazira to Syria and is a centre for the fringe of cultivation on the southern flank of the Jazira hills. The inhabitants are mainly Shia Turkomans, who dress as Arabs and often speak Arabic.

The town is unwalled and stands on the banks of a stream at the foot of a mound on which are the small sarai and police station. The houses are built of stone and *juss*, and there is a small bazaar. The ruins of a castle exist on a hill west of the town. There is cultivation on the higher ground north and on the sloping plain south of the town. It was a riot at Tel Afar that ushered in the disturbances culminating in the Arab rebellion of 1920. *Water*, sulphurous or saline, is from the spring which feeds the stream. There is a small hospital (12 beds).

Communications

Land: Tel Afar is a route centre for local tracks in the northern Jazira. An improved motor-road [13] leads east to Mosul and west to Sinjar, whence it continues to Chadaddi and Deir ez Zor in Syria. A dry-weather road branches to Badi.

TIKRIT. 34° 36′ N., 43° 41′ E.; alt. *c.* 375 feet. Pop. 3,000. Nahiya cap., Baghdad Liwa.

Tikrit, on the right bank of the Tigris 30 miles north-north-west of Samarra and 64 miles south of Qala Sharqat, is built on a cliff of the escarpment of the Jazira plateau rising 70 or 80 feet above the Tigris, which here varies from 250 to 600 yards across. West of the town the land is high, stony, and untilled, and the low hill of Jabal Salwa rises 4½ miles west-north-west. Where there are no bluffs there is a narrow strip of cultivation along the river banks. The inhabitants are mostly Arabs, with a Jewish colony.

A city near Tikrit appears in the Assyrian and Babylonian records and the ruins of an old town stretch far to the west of the modern site. Abbasid Tikrit, the birthplace of Saladin, then the most northerly town of Iraq, was predominantly a Christian Jacobite town, famous for its woolworkers, water-melons, strong castle, and monastery. The Christians were reduced by the Mongol invasions and the town, which was besieged by Tamerlane in 1400, fell into gradual decay.

In the centre of the small, brick-built town there is a sarai and police barracks and a few shops. The fine but ruinous mosque of Al Arbain (the Forty) is to the west of the town.

Trade with visiting tribesmen and with Samarra and Baghdad is the chief means of livelihood, the town owing most of what importance it has to the raft (*kellek*) traffic. Cereals, meat, and fodder are available, but the market has little surplus. *Water* is obtained by goatskin from the Tigris.

Communications

Water: There is a little navigation on the Tigris by native craft with Baghdad and Mosul in the high-river season. A light shakhtur ferry connects the town with the left bank.

Rail: Tikrit station, 2 miles west of the town, is on the Baghdad–Mosul standard-gauge line (Rly. 4).

Road: Unmetalled road [5] on the right bank north to Mosul. An unmetalled road north up the left bank to Fat-ha and Kirkuk. Unmetalled road north-east across the steppe to Ain Nukhaila pass in the Jabal Hamrin. Unmetalled road on the right bank south to Baghdad. Desert routes across the Jazira south-west by a chain of wells to Hit and to Haditha and west with fewer wells to Ana.

Air: Landing-ground near the railway station.

ZAKHO. 37° 08′ N., 42° 40′ E.; alt. *c.* 1,450 feet. Pop. 4,000. Qadha cap., Mosul Liwa. Rainfall station (P. and T.).

This small frontier town 6 miles from the Turkish border is built on a rocky island in the Khabur river at the northern foot of the Jabal Bakhair (photo. 38). The inhabitants consist of Kurds, Chaldeans, and Jews. It is connected by modern bridges with both banks (p. 575). There is another stone bridge 2 miles upstream. The town has an old Kurdish castle, a police station, and a post office with direct telegraphic communication with Turkey through Dernakh.

The town has good supplies of grain and sheep from the Zakho plain. Good and abundant *water* is obtained from the Khabur.

Communications

Water: Rafts travel down the Khabur to the Tigris.

Land: Partly metalled road [11] leads south over the Geli Spi pass in the Jabal Bakhair to Simel and Mosul. An unmetalled route west down the left bank of the Khabur to Pesh Khabur.

Air: Landing-ground on the left bank south-west of the town.

ZUBAIR. 30° 23′ N., 47° 43′ E.; alt. *c.* 30 feet. Pop. 6,000.

Zubair is an oasis town, desert market, and holy city on the fringe of the Southern Desert, 11 miles south-west of Basra and 2 miles north-west of the R.A.F. establishments at Shuaiba. There are numerous wells of varying salinity in the tamarisk groves around the town. The inhabitants are Sunnis, mostly of the Wahhabi sect, and many are merchants from Saudi Arabia.

Zubair adjoins the site of Omayyad and Abbasid Basra and is named after a companion of Mohammed slain in the Battle of the Camel (p. 240) and buried within the present settlement. His tomb remained a place of pilgrimage after the decay of old Basra, and the town was a focal point in the tribal wars of the seventeenth and eighteenth centuries, sometimes controlled by the Muntafiq, sometimes by the Mamluk Pashas (p. 259), one of whom, Buyuk Sulaiman, built its walls; it acted as an outer defence of

Basra in the invasions of the Wahhabis, who took it temporarily in 1804. Till 1918 it was ruled by an hereditary shaikh, but is now within the Iraqi administration.

The town is still walled. Its houses are plain mud- or burnt-brick buildings, with cool sirdabs (p. 349) and sometimes with *badjirs* or wind-catchers. The large covered bazaar is clean and of interest, being the centre of beduin trade. Camel caravans unload on the *Maidan*. The town exists by the desert trade and is the principal beduin market of the Southern Desert. There are several mosques, which are filled five times a day, the Sunni ceremonies being strictly maintained. The tomb of Zubair, marked by its leaning minaret, is a pilgrim centre. The town, being visited by all the southern tribes, is a sounding-board for Arabian intelligence and rumours. Supplies are plentiful, and *water* is from wells.

Communications

Rail: The metre-gauge line from Basra by Shuaiba junction to the wartime port of Umm Qasr serves the town (Rly. 1).

Road: Tarmac road [2] north-east to Basra, and unsurfaced road south-east to Umm Qasr. Motor-road south to Kuwait. Tarmac road north-west to Shuaiba. Unmetalled road [2] to Ur and Nasiriya.

Air: R.A.F. airfield 2 miles north-west at Shuaiba.

CHAPTER XIII

COMMUNICATIONS

WATER is the controlling factor of communications in a naturally arid land. The two great rivers of Iraq have therefore always formed the natural routes for migration and conquest between the Mediterranean and the Persian Gulf. From either flank land-routes come in, from water-point to water-point across the desert, or along perennial streams which issue from the Kurdish mountains. Thus the chief aids to movement in the past have been river-craft, the camel, and the horse.

With the development of modern transport, the same general principle remains. Shallow-draught steamers supplement native river-craft, railways supplant the rivers where navigation becomes difficult, motors may travel from well to well in the desert or the Jazira, but they all tend to follow the old pattern, though with wider divergence. Only aircraft, with their greater range and freedom, can ignore the ancient routes, but even these must in emergency come down by water.

The three most important route-centres are Baghdad, Basra, and Mosul. Baghdad, the river-port at the normal limit of low-water Tigris navigation, at the junction of Upper and Lower Mesopotamia, where the Tigris and Euphrates are less than 40 miles apart, is a railway, road, and river centre, with communications up and down both rivers, and by the Diyala into Persia. Basra, with its deep-water wharves at Maqil is the interchange point for ocean-going vessels, river-craft, and railway, with rail and motor routes into Persia, and desert connexions with Kuwait and Arabia. Mosul in the north has roads and railway into Syria and Turkey, besides being the route-centre for the Jazira and Kurdistan. Of lesser centres, Kirkuk and Khanaqin, at the termini of metre-gauge railways, and both readily reached at all seasons by motor from Baghdad, have grown in importance with the exploitation of their oil; Karbala and Najaf are foci which gather Shia pilgrims to their shrines; Rutba is a desert centre close to the pipe-line from Kirkuk to Haifa, and on the motor and air-route which links Baghdad with the Mediterranean.

WATERWAYS

THE navigable waterways of Iraq are the Shatt al Arab, the Tigris, the Euphrates, and the Shatt al Gharraf.

The Shatt al Arab is navigable as far as Maqil (the shipping centre of Basra) by any vessel able to cross the bars at its entrance. The Tigris is navigable by shallow-draught river steamers as far as Baghdad, and with great difficulty by small steamers as far as Mosul in the high-river season; on the Tigris above Mosul, and on the Great and Little Zabs, navigation is downstream by rafts only. The Euphrates and Shatt al Gharraf are navigable only by native sailing craft.

The high-river season is normally from December to June, with the maximum level on the Tigris in April and on the Euphrates in May (figs. 3, 4): the minimum level occurs at the beginning of October.

History

Navigation on the waterways of Iraq dates back to beyond classical times (photos. 103, 104) and some of the types of craft still in use are very ancient. The development of steamship traffic on the Tigris was the consequence of Colonel Chesney's classical journey in 1836 by steam paddleboat down the Euphrates from Birecik to Basra and thence up to Baghdad. During the nineteenth century the Tigris service was provided by the British company of Lynch Brothers and by a rival subsidized Turkish company.

During the War of 1914–1918 the Inland Water Transport organized a river supply service, and built the port of Basra, repair workshops, and several fuel depots for the Tigris steamers. River conservancy was also necessary, involving dredging, traffic control, lighting, and bandalling—the use of bamboos and mats or wire netting to divert water from shoals and so to scour one deep channel instead of several smaller channels.

Between the wars steamer services were maintained on the Tigris up to Baghdad, but railway competition soon led to greatly reduced traffic and to neglect of conservancy, and irrigation diverted much water from the navigable channels and also caused more silt to be deposited. Increasing oil exports from Abadan led to the dredging of the Rooka channel at the entrance to the Shatt al Arab, from 1924 onwards.

Since 1940 traffic on the Tigris has again been increased by the temporary shipping difficulties in the Mediterranean, and by the need to send aid by all possible routes to Russia. Channels have again been improved by bandalling and dredging. The Kut–Baquba

railway (p. 602) has been built to by-pass both the new Kut lock and the difficult section of the Tigris from Kut to Baghdad.

Types of inland water craft

The draught of *river steamers* on the Basra–Baghdad service is restricted to 4 ft. 6 in. in the high-river season and to 4 feet in the low-river season. Side-paddle steamers, quarter-wheelers, screw tugs, and stern-wheelers are used. The draught of barges, which are towed alongside the steamers, is restricted to 4 feet in the high-river season and to 3 feet in the low-river season. The principal owners are British companies, but there are also native-owned steamers and barges.

Mahailas and *Safinas* are native sailing craft much used from Fao to Baghdad. Their length varies from 30 to 80 feet, their beam from 10 to 25 feet, their draught averages 3 or 4 feet, and their capacity 50 tons. They have one mast provided with a lateen and a stay-sail, and a high sheer forward and aft. Safinas built at Baghdad are often coated with bitumen. A very similar vessel, rather smaller but with shallower draught, is used on the lower Euphrates, particularly on the Hammar lake, where it is known as a *bellum*. It is a long, narrow, double-ended, flat-bottomed craft, with an average draught of less than 1 ft. 6 in. and an average capacity of 5 to 10 tons. Both types are ancient and are admirable for the waters in which they work. They are towed upstream, if unable to sail against wind and current, by a long rope led from the stern through a block at the masthead to the crew on the bank. There are also many smaller boats, also known as *bellums*, used for passengers only in and around Basra and elsewhere, which may be worked by paddling or poling (photos. 13, 215, 235).

Kelleks are native rafts of timber and brushwood supported on skin bladders down the upper Tigris, the upper Euphrates, and the Great and Little Zabs, carrying timber, brushwood, and local supplies. *Quffas* are coracles of basket-work coated with pitch, as a rule only used locally for short journeys, such as ferries. The larger types may take as many as twenty men. *Shakhturs* are flat-bottomed roughly built oblong boats with squared ends, clumsy to handle, about 18 feet long with 1½-foot draught, used downstream on the Euphrates above Ramadi, and capable of loads up to 5 tons. *Mashufs* are light craft, rather like canoes, used in the marsh areas of the lower delta. *Danaks* are larger bitumen-covered canoes, capable of loads up to about 10 tons, more often found on the Euphrates than on the Tigris. They are often used for floating bridges (photos. 182, 214, 216).



214. *Quffas, the coracles of Iraq*

215. *A mahaila being towed upstream against wind and current*



216. *Shakhtur ferry at Quwair*



217. *On the Nairn road from Baghdad to Damascus*

Shatt al Arab Navigation

The Shatt al Arab, from Qurna to the Persian Gulf, is navigable for steamers throughout. The draught of ships is limited by bars. The Rooka channel across the outer bar is dredged to a minimum depth of 23 feet at mean low-water springs and has a maximum depth of 33 feet at high-water springs. The Western channel across the outer bar has a minimum depth of 8 feet and is used by shallow-draught and sailing vessels. The inner bar, east-north-east of Ras al Bisha, is dredged to a minimum depth of 23½ feet. The Karun bar, south of the junction of the Haffar channel (p. 152), is dredged to a minimum depth of 20 feet at mean low-water springs and has a maximum depth of about 27 feet at high-water springs. Above Maqil (p. 511), shipping to Qurna is limited by the Qurna bar, which carries maximum depths of 10 feet during the low-river season and 15 feet during the high-river season.

The navigable channel is lighted and buoyed by the port of Basra authorities, so that navigation is possible by night.

Tigris Navigation

The Tigris is navigable as far as Baghdad by river steamers with draughts of 4 ft. 6 in. in the high-river season and 4 feet in the low-river season. They can tow barges, alongside only, with draughts of 4 feet in the high-river season and 3 feet in the low-river season. Steamers without barges take 4 days to go from Basra to Baghdad during the high-river season and 2½ days to return; during the low-river season, 8 days are required for the upstream journey and 7 days down. For steamers towing barges the corresponding times are: high-river, 5 or 6 days up and 3 or 4 down; low-river, 10 to 14 days up and 6 to 8 down. The total upstream movement possible from Basra was estimated in 1942 as 600 tons a day, to be increased to 1,500 tons from Basra to Baghdad or 2,500 tons from Basra to Kut al Imara by the provision of additional craft.

Above Baghdad small steamers of 3-foot draught can reach Mosul with great difficulty between December and May; during the rest of the year in this section, as during the whole year above Mosul, navigation is confined to downstream raft traffic. Small craft can reach Baquba, on the Diyala, during the high-river season.

Navigation on the Tigris is never easy, for several reasons. The river is narrow and has numerous bends. The navigable channels change every season and shoals and sandbanks shift frequently, so

that charts and navigation marks are soon obsolete. The worst month for navigation is September, shortly before the minimum level, before new channels have been scoured. Conservancy was neglected between the wars. Much of the water is drained off for irrigation during the low-river season. The new Kut barrage checks the flow of the river for about 50 miles above it so that the current slackens and silting occurs both above and below; the Kut lock limits the size of steamers and barges, and causes delay in transit. The most difficult sections for steamer navigation are the 'Narrows' between Qurna and Amara, the bends and shoals between Kut al Imara and Baghdad, and the rapids, shoals, and islands between Baghdad and Mosul.

Qurna to Amara. The 'Narrows', between Azair (Ezra's Tomb) and Qala Salih, are only 60 to 70 yards wide, because much water has already been drained off by canals (p. 52). The minimum depths are 5 to 8 feet at high river and 3 to 4 feet at low. The velocity of the current varies from 3 to 5 knots at high river and from 2 to 3 knots at low. There are numerous sharp bends with shoals in the inside curves. Vessels cannot pass in this section, and steamers going up have to draw in to the bank and drop their barges astern to allow downstream traffic to pass.

Below Azair and above Qala Salih navigation of the Narrows is easier. There are good banking-in places at Qurna, Azair, Qala Salih, and Amara, with refuelling depots except at Azair. During the War of 1914–1918 the Narrows were by-passed by a railway from Basra to Amara (p. 580).

Amara to Kut al Imara. Above Amara, the river widens to 200 yards or more. This is the easiest section for steamer navigation, though there are shoals above Ali Sharqi, and three bad reaches during the low-river season between Ali Gharbi and Shaikh Saad. The average velocity of the current is 4 or 5 knots at high river and 1½ or 2 knots at low. There are good banking-in places at Kumait, Ali Sharqi, Ali Gharbi, and Shaikh Saad; Ali Gharbi also has a refuelling depot.

Kut al Imara to Baghdad. This section is very difficult for steamer navigation owing to the acute bends and numerous shifting shoals. It is essential to carry a pilot with recent local knowledge, and information is often passed between vessels going in opposite directions. The velocity of the current varies from 4 to 6 knots at high river and from 1½ to 3 knots at low. There are good banking-in places at Kut al Imara, Naamiya, Hamidiya (Hashimiya), Aziziya, Suwaira, Diyala, and Baghdad; Kut, Naamiya, and Aziziya also have refuelling

depots. The dimensions of the Kut lock (264 ft. by 54 ft. 6 in.) restrict the size of steamers and barges. This section is now by-passed by the Kut–Baquba railway (p. 602), as it was during the War of 1914–1918 by the Kut–Baghdad railway.

Baghdad to Mosul. This section has ledges and occasional gorges with rapids, and wide expanses with confused channels, islets, shingle banks, and conglomerate bars (some the remains of ancient dams). When the river is high enough to make the bars passable, the current is often so strong that the rapids and bends become impracticable. Two small native-owned steamers navigate this section periodically in the high-river season, taking about 15 days to reach Mosul and 4 days to return to Baghdad; British steamer owners regard the section as unsafe for navigation. Practically all the traffic is downstream by rafts (*kelleks*), which are often damaged by rocks.

Above Mosul. The swiftness of the current and the alternating rapids and bars make upstream navigation impossible and downstream raft navigation difficult and dangerous.

Euphrates Navigation

The Euphrates is too shallow for steamer navigation, but small native sailing craft carry from 20,000 to 50,000 tons a year on the lower river. There is shakhtur and raft traffic on the upper Euphrates.

The two principal obstacles to navigation are the Hammar Lake (average depth only 2 ft. 6 in.), and the swamps between Samawa and the Hindiya barrage. Channels were dredged through both during the War of 1914–1918, but were afterwards abandoned.

Navigation on the Euphrates has many of the same difficulties as on the Tigris, especially shoals and islands. There are also sunken masonry obstructions and, above Hit, stone piers carrying water-wheels. The beam of craft is limited by several pontoon bridges and by the Hindiya lock. The opening or closing of the Hindiya barrage also affects navigable conditions.

With an adequate survey, and work at difficult points, the Euphrates should be navigable by motor launches as far as the Syrian frontier.

Shatt al Gharraf Navigation

Native craft use the Shatt al Gharraf to transport grain to Basra. Before the construction of the Kut barrage, the Gharraf was navigable only during the high-river season, but the barrage now ensures a flow throughout the year.

ROADS

THERE was an almost complete lack of cart-roads or permanent bridges in Iraq before 1900, and even in 1914 wheeled traffic south of Baghdad was almost confined to the roads from that city to Karbala, Najaf, and Hilla. There was hardly a motor-car in the country and the tracks were used almost exclusively by travellers with pack transport. During the war many roads were made passable for cars in dry weather, but except in the Basra area little could be done in the way of soling, metalling, or surfacing.

Roads and tracks have been greatly improved since 1918, and to-day there are more than 5,000 miles of fair-weather motor-roads. But probably not more than one-tenth of this mileage is metalled or surfaced. At least 4,000 miles are earth-surfaced roads, levelled by a road grader, embanked and bridged where necessary, but liable to be churned and rutted after rain. The dearth of first-class roads is caused by the absence of stone in the south, and the expense of bringing suitable road-metal or concrete to the site; but this handicap is to some extent off-set by the flatness of the country, the low rainfall for most of the year, and the cheapness of construction and repair of earthen roads.

No precise classification of roads is possible under these circumstances, since so much depends on the season and the amount of repairs and improvements carried out year by year; but it is possible to give a broad outline of road-passability in the different regions in summer and winter.

Lower Mesopotamia. The fine, stoneless, alluvial silt of the delta becomes a morass after rain; large areas are liable to inundation when the rivers are high, and there are numerous irrigation channels to cross. The earthen roads in this region, sometimes carried along the tops of embankments, are therefore only suitable for heavy motors in winter if they have been very carefully consolidated by watering at the time of construction, and when they have been baked hard by the sun, and even then they will not endure continuous traffic.

Upper Mesopotamia. Conditions here are better because there is more gravel and conglomerate in the soil. The Jazira as a rule gives a good surface to cars where gypsum outcrops and *shaiban* (p. 78) are absent. Between Mosul and the Wadi Tharthar there are an increasing number of watercourses and low hills which tend to keep traffic to defined lines. In any part of this country, as in the south, salt-impregnated country (*sabkha*) retains moisture long after the sur-

rounding country is dry and should be avoided. If roads have to cross such tracts they should at least be roughly metalled. The Assyrian foothill region, excepting the Kirkuk, Erbil, and Mosul plains, the last two of which are fairly heavily cultivated, is a good road area. Stone is available for metalling where required, traffic is seldom restricted to the prepared width of road, and it is often better to diverge across uncultivated land on either side.

Iraqi Kurdistan. In the Kurdish mountains, where there is ample material for first-class roads, it is the physical difficulties which have to be considered. A few good well-engineered metalled roads have here been constructed, at considerable initial cost, those from Erbil by Ruwandiz to Rayat, and from Kirkuk to Sulaimaniya and on to Penjwin being especially noteworthy.

The Western and Southern Deserts. The introduction of the motor-car has made a great difference to desert travel, and this region is perhaps the most suitable of all for modern transport. The surface is often excessively hard on tyres, and rocks and depressions may slow down transport in places, but the greater part of the desert affords a hard, level, all-weather surface suitable for all classes of motor transport at fairly high speeds (photo. 217).

Road Maintenance

All roads outside municipal areas are the direct responsibility of the Public Works Department; those within municipal boundaries are maintained by the local authorities, assisted by grants by the P.W.D.

Maintenance consists chiefly of repairing the damage caused annually by rains and floods, and by excessive traffic after rain. Metalling is, as mentioned above, a great difficulty. During the War of 1914–1918 road metal for the Basra area was brought from Kuwait, and a railway was laid to Jabal Sanam for similar purposes. This was dismantled during the inter-war period, but has again been laid since 1941 (p. 585). Gravel is also collected with much labour from the desert edge, but the cost is high. In recent years considerable progress has been made in surfacing roads with tarmac, obtained from the country's rich bitumen deposits.

Principal Roads

The principal roads outlined below are those which follow the two main rivers, and those which reach outwards from such centres as Baghdad, Mosul, and Kirkuk. Only the main features and principal bridges are given, since from what has been said above the details of

alinements and mileages are apt to change. There have been improvements since 1941, more roads have now been surfaced with tarmac, and some of the pontoon bridges have been changed. But the general pattern remains the same, and for greater detail reference should always be made to the most recent reports on itineraries in order to ascertain the exact mileage and the surface condition. It should be remembered that road maps in such a country quickly become out of date. Figures in ordinary brackets are approximate mileages from the starting point; those in square brackets are the number of the road in the present list. The roads outlined are:

[1] Basra–Baghdad (Tigris Road).
[2] Basra–Baghdad (Euphrates Road).
  [2 *a*] Hilla–Najaf.
  [2 *b*] Hilla–Karbala.
  [2 *c*] Mufraq–Karbala.
[3] Nasiriya–Kut al Imara (Shatt al Gharraf Road).
[4] Baghdad–Al Qaim (Euphrates Road).
[5] Baghdad–Mosul (Tigris Road).
[6] Baghdad–Mosul (Kirkuk Road).
[7] Baghdad–Khanaqin (Kermanshah Road).
  [7 *a*] Baquba–Mandali.
  [7 *b*] Shahraban–Balad Ruz.
[8] Kirkuk–Sulaimaniya–Penjwin (Sulaimaniya Road).
  [8 *a*] Sulaimaniya–Qala Dizeh.
  [8 *b*] Sulaimaniya–Qaradagh.
  [8 *c*] Serao–Halabja.
[9] Erbil–Ruwandiz–Rayat (Ruwandiz Road).
[10] Mosul–Aqra (Aqra Road).
[11] Mosul–Zakho (Zakho Road).
  [11 *a*] Simel–Amadia.
[12] Mosul–Bir Ugla (Nusaybin Road).
[13] Mosul–Syrian frontier (Sinjar Road).
[14] Kirkuk–Transjordan (Pipe-line Road).
[15] Baghdad–Transjordan (Baghdad–Haifa Road).
[16] Karbala–Nukhaib (Nukhaib Road).
[17] Karbala–Jumaimu (Darb Zubaida).
[18] Samawa–Salman (Darb as Salman).
[19] Ur–Rukhaimiya (Busaiya Road).

Route [1]. BASRA (MAKINA)–BAGHDAD (Tigris Road)

Distances in Miles

(41) Qurna. (64) Azair. (81) Qala Salih. (108) Amara. (145) Ali Sharqi. (175) Qala Nahr Shumaish. (204) Shaikh Saad Camp. (236) Kut al Imara. (287) Aziziya. (318) Bustan. (335) Rashid, Hinaidi. (341) Baghdad.

Principal Bridges

(5) Euphrates outlet (Hammar Lake), 180 yards.
(6) N. Saafir, 50 yards, 2-span, steel girders, concrete abutments and pier.
(29) N. Shafi, 60 yards, steel pontoon.
(40) Old Euphrates channel, near Qurna, 100 yards, steel pontoon.
(95) Mijar al Kabir, 60 yards, timber trestle, 11 piers.
(101) N. Tabar, 40 yards, timber trestle.
(107) Tigris, at Amara, 70 yards, steel pontoon.
(108) N. Chahala, 75 yards, screw-pile, with opening span.
(108) N. Mashara, 50 yards, screw-pile, with opening span.
(214) 'Wadi' (Chankula), steel bridge, no details.
(330) Diyala ('Lancashire Bridge'), 150 yards, 4-span, steel girders, concrete abutments and piers.

General Description

The road has an earthen surface and is fit for a limited amount of heavy motor-traffic, except after rain. It keeps to the right (west) bank of the Shatt al Arab and Tigris to Amara, generally following the embankment of the old metre-gauge railway, and crossing numerous channels by small bridges and culverts. From Amara the road follows the left bank of the Tigris to Baghdad, cutting across most of the river bends. Between Shaikh Saad and Kut al Imara the road is particularly liable to interruption in winter and spring, but may be by-passed by crossing the Tigris by ferry at Shaikh Saad, following the right bank, and recrossing the Tigris by the Kut barrage.

Route [2]. Basra City–Baghdad
(Euphrates Road)

Distance in Miles

(11) Zubair. (41) Rumaila. (71) Luqait. (106) Tel al Lahm. (128) Nasiriya. (180) Khidhr. (198) Samawa. (257) Diwaniya. (308) Hilla. (340) Iskandariya road junction. (368) Baghdad.

Principal Bridges

(200) Euphrates (Shatt Atshan) at Barbuti, near Samawa,[1] 180 yards, decked railway bridge, 6-span, steel truss, concrete abutments and piers.

[1] There is an alternative crossing of the Euphrates at Samawa by a strong pontoon bridge.

(203) Euphrates branch at Imam Abdulla, 217 yards, decked railway bridge, 6-span, steel truss, concrete abutments and piers.

(309) Shatt al Hilla (Hilla canal) at Hilla, 50 yards, 10-span, timber trestles, with opening span. There are two alternative bridges of similar design.

(366) Nahr Washash (Khir bridge), 50 yards, single span, steel girders, brick abutments.

There are 23 lesser bridges (including 3 canal regulators and 1 railway bridge), and a number of culverts on this road.

General Description

The road keeps south of the Euphrates as far as Samawa, immediately beyond which town it crosses both branches of the river; it then keeps west of the Shatt al Hilla to the town of Hilla where it crosses to the left bank. After passing Babylon it strikes northwards direct for Baghdad, crossing several canals taking water from the Euphrates. The road has a tarmac surface to Shuaiba near Zubair, but is little more than an unsurfaced desert track, very dusty in summer and sandy in places, between Shuaiba and Tel al Lahm. Thence to Iskandariya road junction it has an earthen surface; the last 28 miles have tarmac. The road is fit for heavy motors throughout in fine weather and the culverts over irrigation channels are strongly built. Where there is danger of flooding the road is carried on an embankment, especially between Samawa and Rumaitha, but heavy rain may make it impassable for mechanical transport.

Principal Branches

[2 *a*]. Hilla–Najaf.
[2 *b*]. Hilla–Karbala.
[2 *c*]. Mufraq–Karbala.

Route [2 *a*]. Hilla to Najaf (42), via Kifl (20) and Kufa (35).

A well-defined graded main road with earthen surface, embanked above flood-areas where necessary, provided with good bridges and culverts mostly of brick; fit for heavy motor traffic except after much rain. There are boat-bridges at Muchatim (26) over Shatt ash Shaura (Euphrates), 100 yards, and at Kufa (35) over Euphrates, 120 yards.

218. *Falluja bridge over the Euphrates*

219. *Road bridge over the Tauq Chai near Tauq*



220. *View north-eastwards from the Pirmum pass, between Erbil and Shaqlawa, on the Ruwandiz road*



221. *Hairpin bends leading to the Spilik pass on the Ruwandiz road*

Route [2 *b*]. Hilla to Karbala ($27\frac{1}{2}$) via Tuwairij (Hindiya) (14).

A well-graded road with earthen surface, well bridged and raised in places between Tuwairij and Karbala above flood level. Between Hilla and Tuwairij it is liable to be in bad repair. The Euphrates at Tuwairij is spanned by a boat bridge 180 yards long.

Route [2 *c*]. Mufraq to Karbala (36) via Musaiyib (14).

This is part of the direct road from Baghdad to Karbala, Mufraq being about 30 miles from Baghdad on Route 2. It has only an earthen surface, but has strong bridges and culverts throughout. The pontoon bridge over the Euphrates at Musaiyib is 193 yards long.

Route [3]. Nasiriya–Kut al Imara (Shatt al Gharraf Road)

Distances in Miles

(18) Suwaiq. (28) Shatra. (51) Karradi. (62) Qala Sikar. (89) Kut al Hai. (118) Kut al Imara.

Bridges and Ferries

There are no fewer than 82 bridges on this road, mostly over canals and distributaries. Those over the Shatt al Gharraf at Suwaiq and Shatra are capable of maximum loads of 3 tons. The Gharraf is crossed at Qala Sikar by ferry, and the Tigris by the Kut barrage. The new floating bridge at Nasiriya has 11 steel and 4 wooden pontoons.

General Description

The road has an earthen surface throughout, and cannot be depended upon to be in other than poor condition, though stated to be suitable for the passage of heavy motor vehicles. The road crosses the Gharraf to the left bank at Suwaiq and recrosses at Shatra, but vehicles heavier than 3 tons must keep to the right (west) side of the river between these places. After crossing to the left bank by the Qala Sikar ferry, the road is sometimes as much as 5 miles from the river. The alinement throughout is dependent on the many bridges, and though in the past it has been possible to diverge at places during the low-water season when the irrigation channels were dry, the completion of the Kut barrage, which now permits perennial irrigation, must prevent this practice. Heavy rain or flood closes parts of the road altogether.

Route [4]. BAGHDAD–AL QAIM
(Euphrates Road)

Distances in Miles

(40) Falluja. (55) Habbaniya. (72) Ramadi. (108) Hit. (133) Khan Baghdadi. (159) Haditha. (195) Ana. (246) Al Qaim.

Principal Bridges

(2) Nahr Washash (Khir bridge), 50 yards, single span, steel girders, brick abutments.
(40) Euphrates at Falluja, 300 yards, 5-span, steel girders on steel concrete-filled cylinders (photo. 218).
(142) Wadi Hauran, 45 yards, 5-span, steel girders and concrete.
(156) Wadi Haqlan, 75 yards, 8-span, masonry viaduct.
(195) Wadi near Ana, 60 yards, 8-span, steel girders.

General Description

As far as Ramadi this road has a tarmac surface, but thereafter is only metalled in places, chiefly from about mile 98 through Hit, and from the I.P.C. post at Haditha about mile 155 through Haditha. Elsewhere the road is only roughly made, but is fit for heavy motors. The road leaves Baghdad by the Khir bridge on Route [2] (fig. 79). There are many minor bridges and culverts between here and Ramadi; also 16 bridges (besides the 3 listed above) over wadis which drain the western desert; most of these are of masonry or concrete, but all are not kept in good condition. The road is rarely interrupted by rain for more than a few hours.

Route [5]. BAGHDAD–MOSUL
(Tigris Road)

Distances in Miles

(76) Samarra R.S. (109) Tikrit R.S. (136) Baiji R.S. (185) Qala Sharqat. (205) Qaiyara. (253) Mosul.

Bridges

There are about 20 minor bridges but none are of first importance.

General Description

Except for the first 4 miles which is macadamized, and occasional places where there is rough metalling, the road almost to Baiji has

only a hard earthen surface. But it is everywhere a well-defined track and has modern culverts in the south. From 5 miles south of Baiji it is metalled or macadamized while passing through sand, but the western slope of Jabal Mak-hul is rough going. The eastern slope is

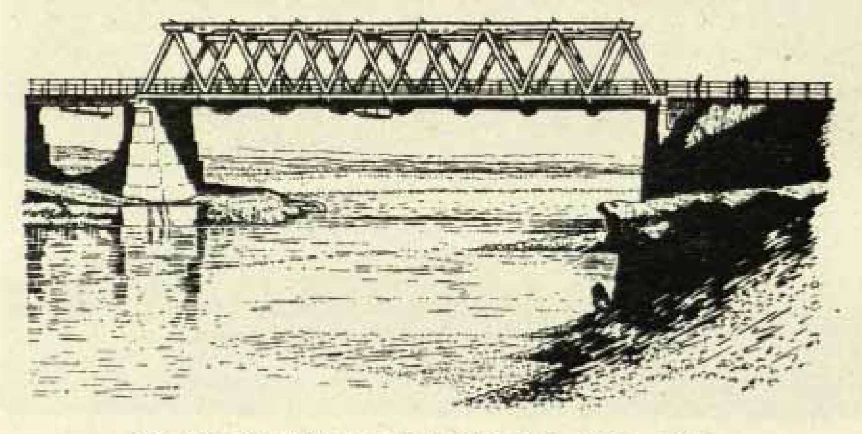


FIG. 85. *East bridge over the Little Zab at Altun Kopru*

well graded to Qala Sharqat, the last part being a hard desert track. The old Turkish road through the Fat-ha gorge has been destroyed by rain. From Qala Sharqat to Mosul the road is metalled or macadamized throughout, ramped where necessary, and has modern bridges and culverts.

Route [6]. BAGHDAD–MOSUL
(Kirkuk Road)

Distances in Miles

(46) Diltawa. (99) Injana. (135) Tuz Khurmatli. (160) Tauq. (190) Kirkuk. (218) Altun Kopru. (252) Erbil. (274) Eski Kellek. (304) Mosul.

Principal Bridges

(133) Aq Su near Tuz Khurmatli, decked railway bridge, 320 yards, 23-span, plate-girders.

(160) Tauq Chai, near Tauq, 210 yards, 10 stone arches and 1 Pratt steel truss (photo. 219).

(218) Little Zab, at Altun Kopru: (*a*) East bridge, 64 yards (one Hopkins span 120 ft., 2 reinforced concrete spans each of 36 ft.) (fig. 85); (*b*) West bridge, 130 yards (5 light Hopkins spans).

(274) Great Zab at Eski Kellek, three bridges: (*a*) 35 yards (one Hopkins span 105 ft.); (*b*) 84 yards (20 R.C. spans); (*c*) 440 yards (15 stone arches and 5 Hopkins spans on steel concrete-filled cylinders) (fig. 86).

(280) Khazir Su at Manguba, 107 yards (3 Hopkins spans with

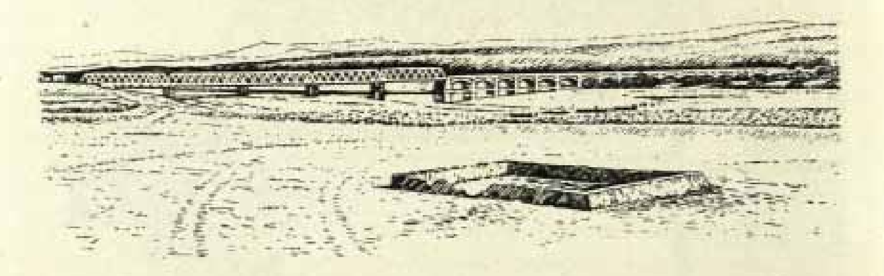


FIG. 86. *Bridge over the Great Zab at Eski Kellek on the Erbil–Mosul road*

R.S.J. spans at either end), superseding suspension bridge, 110 yards, now probably dismantled.

(304) Tigris at Mosul, 330 yards (8 Hopkins spans on steel concrete-filled cylinders (photo. 200).

There are also about 30 lesser bridges.

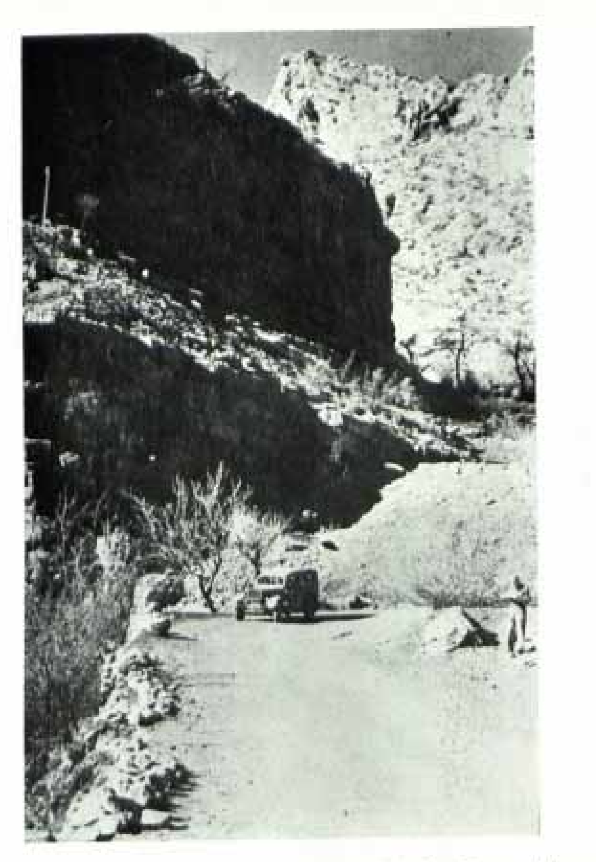
General Description

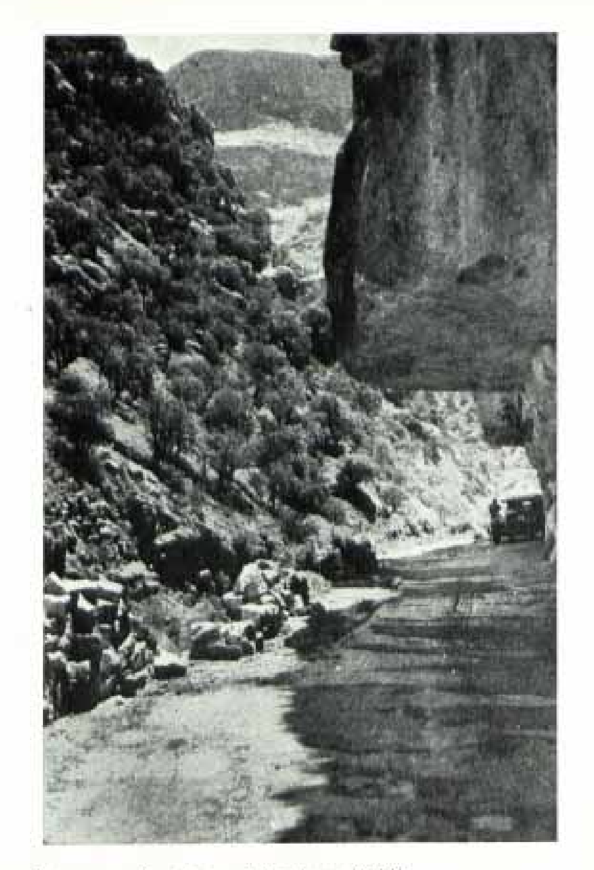
This is the main road between Baghdad and Mosul. The new alinement runs through Diltawa and crosses the Injana or Abu Ghuraib pass over the Jabal Hamrin east of the Adhaim defile to Tuz Khurmatli, thus avoiding the detour by the Diyala and Qizil Ribat. It is gravelled to within 10 miles of Kirkuk and thence has a tarmac surface to Mosul. The old direct road between Altun Kopru and Mosul crossed the Great Zab by the Quwair ferry, but the tarmac road makes the detour by Erbil and crosses the Great Zab and Khazir Su by modern bridges at Eski Kellek and Manguba. Before the railway between Qaiyara and Mosul was completed in 1940 (p. 583), there was a diesel-engined bus service for Simplon-Orient passengers between Mosul and metre-gauge railhead at Kirkuk, but the service has been suspended and the road is less used than formerly. It is fit for heavy motor traffic throughout and is rarely interrupted.

Kirkuk, Erbil, and Mosul are important road centres.

222. *The Ruwandiz road between the Spilik pass and the Khalifan gorge*

223. *Khalifan bridge, at the entrance to the gorge, at mile 61 on the Erbil–Ruwandiz road*





224, 225. *The road in the Ruwandiz gorge, between miles 63 and 65 from Erbil*

Route [7]. BAGHDAD–KHANAQIN (Kermanshah Road)

Distances in Miles

(34) Baquba. (78) Sadiya (Qizil Ribat). (98) Khanaqin.

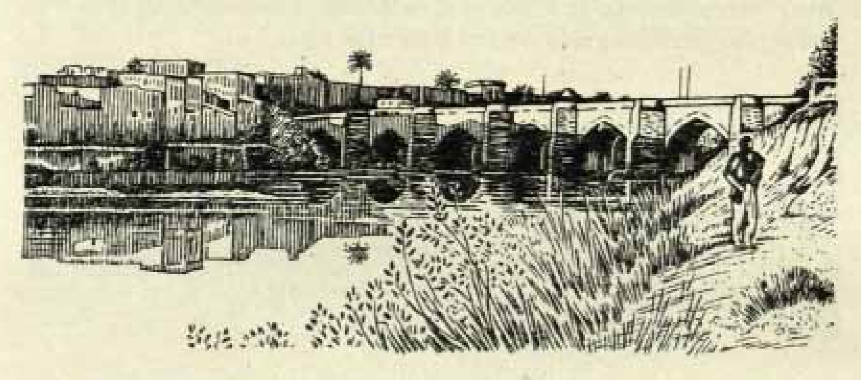


FIG. 87. *Masonry bridge over the Alwand (Hulwan) at Khanaqin*

Principal Bridges

(33) Diyala at Baquba, (Marshall's) decked railway bridge, 180 yards, 6-span, steel trusses, masonry piers and abutments (fig. 91).

(98) Alwand (Hulwan) at Khanaqin, 67 yards, 11 masonry arches (fig. 87).

General Description

This is the main road from Baghdad by the Diyala into Persia. From Shahraban (60) the road has a tarmac surface to the Iraq frontier police post at Mundhiriya 5 miles beyond Khanaqin. Work was proceeding on the section from Baghdad to Shahraban in 1943, and the whole may now be finished as a tarmac road. It is a two-way road throughout except at bridges. It crosses the Jabal Hamrin east of the Diyala defile by the Kurdaruz pass (558 ft.), descends to the Kurdara which is crossed by a concreted ford, and after leaving Qizil Ribat (Sadiya), crosses the low Qizil Ribat hills and Jabal Darawishka by the Qizil and Fasila passes direct to Khanaqin. The road continues on through Persia by the Tak-i-Gireh pass, Kermanshah, Hamadan, and Kazvin to Tehran.

Branch Roads

[7 *a*]. Baquba to Mandali (56), via Balad Ruz (30).

[7 *b*]. Shahraban (Muqdadiya) to Balad Ruz (29).

Both are provided with bridges and culverts, and are passable for heavy motors in fine weather. The only major bridge is that over the Ab-i-Naft at mile 45 on Route [7 *a*]: a timber-decked steel-suspension bridge 80 yards long and 20 feet above the river bed.



FIG. 88. *Tainal bridge between Chemchemal and Sulaimaniya*

Route [8]. KIRKUK–SULAIMANIYA–PENJWIN (Sulaimaniya Road)

Distances in Miles

(28) Chemchemal. (47) Tainal. (68) Sulaimaniya. (99) Serao. (134) Penjwin.

Principal Bridges

(0) Qadha Chai at Kirkuk, 80 yards, 15 stone arches (photo. 206).
(47) Tainal Chai, at Tainal, 60 yards, 5 spans (fig. 88).
(64) Obara (Chaqlawa), Sarchinar, near Sulaimaniya, 70 yards, 9 stone arches (fig. 89).
(122) Gogasur at Spik Buraran, 35 yards.

General Description

This road has a tarmac surface to Sulaimaniya, and is metalled or tarred to Serao; thence it is only metalled or tarred where necessary. It is passable for heavy motors but has many steep gradients and sharp bends. The Bazian pass (40) has an easy gradient but is cut through a knife-edge ridge which overlooks the road from 700 feet. The Tasluja pass (54), 3,078 feet, has a gradient of 1 in 6; the Kani

Spika (117) and Kani Manga (129) passes, over 5,000 feet, each have 12 hair-pin bends around which lorries have to reverse. The road passes over the watershed between the basins of the Diyala and Little Zab, north of the Halabja plain, and crosses the Gogasur valley to Penjwin in the Qizilja valley, which is only 3 miles from the boundary. The road continues into Persia through Senna to Hamadan, where it joins the Persian road from Kermanshah to Tehran mentioned in Route [7].

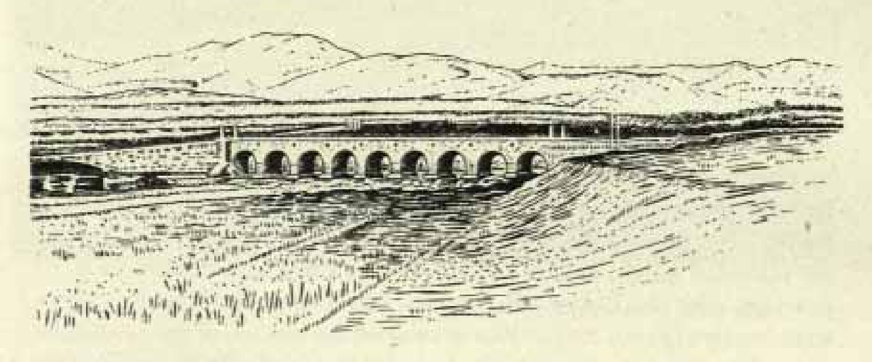


FIG. 89. *Sarchinar bridge over the Obara Chai near Sulaimaniya*

Branch Roads

[8 *a*] Sulaimaniya to Qala Dizeh (75) via Mirza Rustum (54); an all-weather tarred road fit for motors up to 6 tons, well bridged throughout, except Little Zab which is crossed by ferry at Dukan (40), or by ford between June and October (100 yards).

[8 *b*] Sulaimaniya to Qaradagh (28), fit only for light motors and liable to considerable interruption after rain.

[8 *c*] Serao to Halabja (16); a tarred road, well bridged, and capable of taking heavy motors.

Route [9]. ERBIL–RUWANDIZ–RAYAT
(Ruwandiz Road)

Distances in Miles

(32) Shaqlawa. (54) Spilik pass. (73) Jindian. (75) Ruwandiz. (84) Razanok. (104) Rayat. (110) Persian boundary.

Principal Bridges

(14) Bastura Chai, 38 yards, 4-span, concrete.
(65) Rubar-i-Ruwandiz, 45 yards, single Hopkins span, steel truss (photo. 227).
(66) Rubar-i-Balikian, 43 yards, 2-span, steel truss.
(82) Rubar-i-Ruwandiz, near Berserini, 50 yards, single Hopkins span, steel truss.
(84) Rubar-i-Ruwandiz at Razanok, 50 yards, as that near Berserini.

General Description

The road, completed in 1932, took four years to build, and surmounts great natural obstacles. It has an asphalt surface and well-cambered bends, and is strongly bridged throughout, but there are hairpin bends at the Pirmum pass (16), Shaqlawa (32), and the Spilik pass (54) (photo. 221). The road enters the narrow Gali Ali Beg (or Khalifan gorge) at mile 61 and follows the Alana Su almost to its junction with the Rubar-i-Ruwandiz, crossing three times by single-span bridges (photo. 223). It then follows the bottom of the Ruwandiz gorge but crosses to the right bank at mile 65 and the Balikian tributary 1½ miles farther on. At mile 70 a short road goes left to the military station of Diana. Ruwandiz town is about 3 miles off the main road and is reached by a branch which crosses the Rubar-i-Ruwandiz by a steel bridge 12 yards long. The Berserini gorge is penetrated between miles 79 and 85, but the road is very enclosed for another 7 miles. Rayat police post is 6 miles from the Persian border at the Gowre Shinke pass (photo. 226). The road continues on into Persia through Urmia to Tabriz.

Route [10]. MOSUL–AQRA
(Aqra Road)

Distances in Miles

(28) Mindan. (59) Aqra.

General Description

This road is only metalled in places, and though easily passable for heavy motors in fine weather, and provided with bridges and culverts, becomes impassable after rain, particularly across the Jujar plain. The Khazir Su is crossed near Mindan at mile 27 by a 2-span Hopkins bridge, 84 yards, on concrete abutments and pier.

226. *The Ruwandiz road near Rayat, about 6 miles from the Persian boundary*

227. *Single Hopkins-span bridge, 45 yards long, over the Ruwandiz river in the gorge below Ruwandiz, 65 miles from Erbil*

228. *Rutba, on the Baghdad–Haifa road*



229. *Iraq Petroleum Company's post and pumping-station H 2, on the pipe-line between Haditha and Transjordan*

Route [11]. Mosul–Zakho
(Zakho Road)

Distances in Miles

(45) Simel. (74) Zakho.

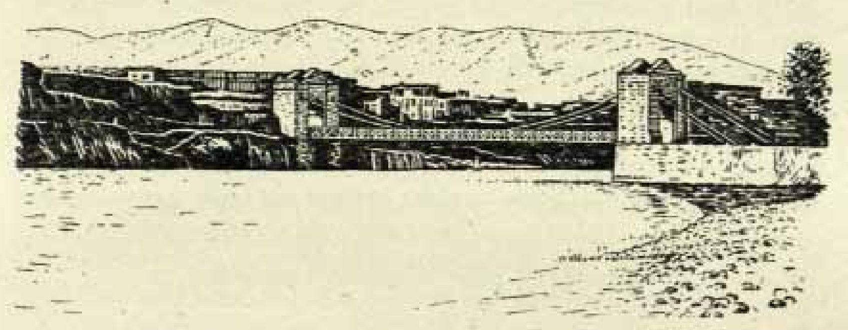


Fig. 90. *South bridge at Zakho over the Khabur Su*

Principal Bridges

(0) Tigris at Mosul (*see* Route [6]).
(1) Khosar, 6 stone arches.
(28) Baqaq, 20 yards, single-span, iron lattice-girder.
(40) Dohuk, at Aloka, 42 yards, 2-span, steel-girder.
(74) Khabur at Zakho, (*a*) south bridge, 33 yards, suspension (fig. 90); (*b*) north bridge, 70 yards, 2-span, Warren trusses.

General Description

This road is poorly metalled and only in parts; elsewhere the surface is earth or clay, sometimes mixed with stones. It is liable to interruption during rain and for 24 hours afterwards. It crosses the Jabal Bakhair by the Geli Spi pass (61) with hairpin bends, and continues beyond Zakho as an unmetalled road to Cizre (Jezireh ibn Omar), crossing the Turkish boundary at Dernakh.

Branch Road

[11 *a*] Simel to Amadia, an unmetalled road, only passable for motors in fine weather.

Route [12]. MOSUL–BIR UGLA (Nusaybin Road)

Distance, 60 miles.

General Description

The road is unmetalled but graded; bridges, culverts, and causeways have been built where required and the road is passable for heavy motors between mid-April and mid-November; but the mud surface, usually baked hard, becomes easily churned up and impassable during rain and for 72 hours afterwards. There are no major bridges. The road continues across north-east Syria to Nusaybin in Turkey, crossing into Syria 2½ miles beyond Bir Ugla.

Route [13]. MOSUL–SYRIAN FRONTIER (Sinjar Road)

Distances in Miles

(40) Tel Afar. (76) Balad Sinjar. (112) Syrian frontier.

General Description

This road was expected to be finished as an all-weather metalled road by the end of 1943. There were at least 26 small bridges over ravine beds and wadis. In Syria the road continues to the Khabur river which it crosses at the Chadaddi bridge and then branches for the Deir ez Zor and Rakka bridges over the Euphrates. It is expected to become a main link between northern Syria and northern Iraq, and will supersede the old desert track from Mosul to Al Badi farther south which was waterless in fine weather over long stretches, and liable to be waterlogged and impassable after rain.

Route [14]. KIRKUK–TRANSJORDAN (Pipe-line Road via Haditha)

Distances in Miles

(67) Baiji. (162) Haditha I.P.C. (222) H 1. (280) H 2. (310) Rutba. (350) H 3. (394) L.G. XIII.

Bridges and Ferries

(57) Tigris at Fat-ha. (*a*) Aerial cable-way (5 tons); (*b*) I.P.C. motor-ferry (8 tons); (*c*) Public boat-ferry (8 tons).

(161) Euphrates near Haditha. (*a*) Overhead cable-ferry (8 tons); (*b*) Boat-ferry (18 tons).

(162) Wadi Haqlan, 75 yards, 8-span, masonry viaduct.

General Description

This road has only a graded earth surface to Rutba, except for short distances at certain points, e.g. near the ferry crossings of the Tigris and Euphrates, and across the bed of the Wadi Tharthar, where there are short lengths of metalling. Wadis and *shaiban* are usually unbridged, but have their approaches ramped. For the first 46 miles the track through cultivated country is often impassable after rain, but thence to Fat-ha and Baiji it is passable at all seasons. Between Baiji and the Wadi Tharthar (p. 78) it gets easily cut up into sand in summer but is little affected by rain (unless heavy) in winter or spring. Across the Tharthar depression it is ramped, embanked, metalled, and provided with culverts and small bridges where necessary, but the gypsum plain thence to Haditha is rough on tyres and easily corrugated. On the open desert beyond Haditha, speeds of 30 m.p.h. can be run, and where the pipe-line traverses broken country the track deviates to easier ground (photo. 229). Under heavy traffic the soil easily breaks to dust in summer, and is soft after rain, though cars can usually deviate from the track when it becomes bad. Rutba is about 7 miles from the pipe-line road, so that about 14 miles is saved by by-passing it. Beyond Rutba the metalled road from Baghdad to Haifa (Route [15]) becomes available. Landing-ground XIII is just beyond the boundary in Transjordan.

Route [15]. BAGHDAD–TRANSJORDAN (Baghdad–Haifa Road)

Distances in Miles

(40) Falluja. (123) Wadi Muhammadi. (258) Rutba. (298) H 3. (342) L.G. XIII.

General Description

This is the Iraq section of the Baghdad–Haifa motor-road which was completed in 1941. It is now a tarmac road, 17 feet wide throughout. Between Baghdad and Falluja Route [4] is followed. The new alinement beyond Falluja to Rutba is not yet shown on maps (1943), but it by-passes Ramadi round the south side of Lake Habbaniya and later follows the approximate line of the old Nairn route. Beyond

Rutba (photo. 228) it joins and follows the pipe-line into Transjordan. Mileages given above are very approximate. The distances from Baghdad beyond the frontier through Transjordan and Palestine are (388) H 4 Pumping station, (450) H 5 Pumping station, (512) Mafrak, (538) Irbid, (562) Jisr el Majami on the Jordan, (616) Haifa.[1] The old Nairn route leaves the new road at the pipe-line between Rutba and H 3 Pumping station and crosses the desert north-westwards to Damascus, about 270 miles from Rutba (photo. 217).

Route [16]. KARBALA–NUKHAIB (Nukhaib Road)

Distances in miles

(34) Ukhaidhir. (122) Nukhaib.

General Description

The track is over hard sandy desert, with occasional soft patches, to mile 9 where the Abu Dibbis escarpment makes heavy going for a mile. Thereafter the surface is good and beyond Ukhaidhir excellent, with the exception of occasional stony patches. The route is easily passable for heavy motors in dry weather except at the Abu Dibbis escarpment which is always difficult. The route is closed during heavy continuous rain and for 24 hours afterwards, but muddy or boggy patches can be circumvented after this interval.

Route [17]. KARBALA–JUMAIMU (Darb Zubaida)

Distances in Miles

(51) Najaf. (184) Sichr. (190) Shabicha. (270) Jumaimu.

General Description

Between Karbala and Najaf the track passes over the undulating desert bordering irrigated, low-lying, and cultivated land on the east, liable to flood in winter. Patches of drift and soft sand make going for heavy motors difficult, but there is a regular service of motor buses between the two cities. From Najaf to the frontier the Iraqi government has opened up for motor traffic the old pilgrim road which was laid in the eighth century by Zubaida, wife of Harun ar Rashid, from Najaf to Medina and Mecca. It crosses featureless undulating desert

[1] For description see *Palestine and Transjordan*, B.R. 514, pp. 388–389, 515–517.

which becomes rougher and stonier towards the south. Ancient masonry tanks and reservoirs, now mostly ruined, were constructed along the route, and still hold some water after rain. There is a pilgrim quarantine station at Rahaba (Khan Ruhba), 20 miles south of Najaf, and a police post, with wireless, is maintained at Shabicha, 6 miles west of Sichr.

Route [18]. Samawa–Salman (Darb as Salman)

Distance, 91 miles.

General Description

The route is the main line of communications with the headquarters of the Southern Desert Police at Salman. Excepting the first 11 miles, it is well defined and generally good going for motors, but may become difficult after rain. Beyond Salman it continues through Takhadid and across the boundary to Lina near the edge of the Dahana sand-belt (p. 115), where it is known as the Darb al Haj, because of its use by pilgrims.

Route [19]. Ur–Rukhaimiya (Busaiya Road)

Distance in Miles

(53) Abu Ghar. (79) Busaiya. (162) Rukhaimiya.

General Description

This route leaves the railway about 1 mile west of Ur and runs south over flat barren desert, crossing the sand-belt to the ruined fort of Qasr Nabaa without much difficulty (pp. 118–119). Busaiya police-fort was built in November 1927 and receives its supplies by motor along this route weekly from Nasiriya. Going south of Busaiya is over gently undulating soft gravel desert with patches of grass and soft low mounds, which should be avoided by cars.

RAILWAYS

History

Iraq owes almost her entire railway system to British engineers. Before 1914 there was only a 74-mile section of standard-gauge railway under construction between Baghdad and Samarra, part of the strategic 'Baghdad Railway', the concession for which had been

obtained by the German-controlled Anatolian Railway in 1902. During the War of 1914–1918 urgent construction was undertaken to solve transport difficulties; but the course of the campaign, the lack of reserve material in India, and the acute shortage of ocean-going vessels to bring rolling-stock from England prevented a co-ordinated railway programme from being carried out. The lines built during the war may be summarized as follows:

(*a*) *Basra–Nasiriya*. This metre-gauge line, 133 miles long, was sanctioned in April 1916 and completed on 29 December the same year with second-hand material from India. It was originally designed to control the Muntafiq tribes and to assist in collecting and transporting rice from the Muntafiq region, but has since been incorporated in the main line from Basra to Baghdad (p. 591).

(*b*) *Basra–Qurna–Amara*. The line from Qurna to Amara, gauge 2 ft. 6 in., was sanctioned in May 1916, completed in November 1916, dismantled almost at once, and replaced by a metre-gauge track in April 1917. Its length was about 67 miles. The metre-gauge section from Basra to Qurna was not finished until September 1917 because of the difficulty of bridging the tidal outlet of the Euphrates at Qarmat Ali. A floating-bridge on dredger pontoons was eventually installed, but was not altogether satisfactory and it was dismantled, the pontoons being then used for the South Bridge at Baghdad. The Basra–Amara line served its purpose in increasing the transport of supplies from Basra, Maqil, and the new port at Nahr Umr, 12 miles below Qurna, over a section of the Tigris where navigation was extremely difficult because of 'the Narrows' (p. 560).

(*c*) *Shaikh Saad–Sinn–Atab*. This local military supply line, gauge 2 ft. 6 in., was begun in May 1916 and extended to the Shatt al Gharraf during the winter operations before Kut al Imara (fig. 58). It was dismantled in 1917, the track being immediately relaid for temporary use between Baghdad and Baquba, length about 35 miles.

(*d*) *Kut–Baghdad*. This metre-gauge line, 104 miles long, was begun in May 1917 and completed during the year. It was designed to increase the transport of supplies to Baghdad because of the difficult navigation and long slow journey by river between the two towns, especially during the low-water season.

(*e*) *Baghdad–Baquba–Table Mountain* (now *Mansur*). The metre-gauge line to Baquba replaced in November 1917 the temporary narrow-gauge (2 ft. 6 in.) line mentioned above. It was extended by a similar narrow-gauge track to Table Mountain, but this also was replaced by metre-gauge when material became available in 1918. Its





230, 231. *Indian sappers and Turkish prisoners of war building the standard-gauge railway near Baiji, November 1918*



232. *Grading the track for the standard-gauge railway to Mosul*



233. *Metre-gauge Kirkuk railway carrying pipes for the oil pipe-line*

object was partly to supply troops operating towards Kirkuk and partly to form the first section of a line to Hamadan in Persia to assist British troops operating in the Caspian region. The latter was never built, its place being taken by a metalled road [7].

(*f*) *Baghdad–Falluja*. A standard-gauge line was completed between Baghdad West and Falluja in December 1917 to supply the troops operating on the Euphrates.

(*g*) *Baghdad–Hilla*. A standard-gauge line was laid to Hilla during 1918, with narrow-gauge extension to Kifl, to control the Euphrates region south of the Hindiya barrage, and to transport local supplies to Baghdad.

(*h*) *Samarra–Baiji*. The Baghdad–Samarra standard-gauge line was extended beyond Tikrit, and was approaching Baiji near the Fat-ha gorge when the war ended in 1918 (photos. 230, 231).

The railway system existing at the time of the Armistice had thus come into being along the line of the British advance by the Tigris to Baghdad, mainly to supplement road and river transport, and had thence been extended outwards for operational purposes. The gauges had been governed by stocks of second-hand material in India and by the pressing needs of the army. There were gaps between Amara and Kut on the Tigris, and between Nasiriya and Hilla on the Euphrates. The immediate problem was to convert this system into one suited to peace-time needs and development, taking into consideration the financial limitations of the country and the necessity for post-war economy. A single line from Basra to Baghdad was deemed sufficient for post-war purposes, and the Euphrates route was selected as offering a more economic return than the Tigris. It was shorter and more direct; it passed through more populous, better irrigated, and more fertile land; and there was no alternative of transport by river-craft, as on the Tigris, because the Euphrates waters were more dispersed by irrigation cuts and swamps.

The reconstruction of the railway system took several years, but it was not unduly delayed, since much of the material already in the country was used again. The system was divided into two sections, standard gauge north of Baghdad along the Tigris, and metre gauge elsewhere. The standard-gauge tracks from Baghdad to Falluja and Hilla were removed almost at once and used to extend the 'Baghdad Railway' from Baiji to Qala Sharqat in 1919. The metre-gauge line from Kut to Baghdad was dismantled in 1922 and relaid as an extension from Table Mountain to Kirkuk and to Khanaqin. The metre-gauge track to Amara was also taken up and some of it used on

the main-line extension from Ur, on the Basra–Nasiriya railway, through Samawa and Hilla to Baghdad, the last section of which replaced the war-time standard-gauge line that had been removed.

Up till 31 March 1923 the railways were under the administration of the British Government, which provided all funds for capital expenditure. From that date they were administered by the Iraqi Government, which loaned money for capital works, though they remained the property of the British Government until after October 1935, when a preliminary agreement was reached for the transfer of ownership. The reasons for the long delay were disagreement on the amount to be paid for purchase and a stipulation in the Anglo-Iraqi Treaty of July 1930 (p. 297) by which the railways should, on acquisition by Iraq, be managed by a joint board of British and Iraqi directors. Formal agreement was reached in March 1936, whereby the Iraq State took over ownership of the railways, all material assets, and the Reserve fund, for the almost nominal sum of £494,000. The estimated value at that time was £2,500,000 while the constructional costs had amounted to nearly £12 millions. To ensure efficient working arrangements were made for key positions in administration to be held by a limited number of British officials for not more than twenty years.

At the outbreak of war in 1939 the Iraq State Railways comprised the metre-gauge and standard-gauge sections as planned in the reorganization in the early 'twenties.

Metre-gauge Section. The metre-gauge lines were divided by the Tigris at Baghdad into southern and northern parts. The southern part was a single-track line from Maqil (Basra) by Ur, Samawa, Diwaniya, and the Hilla branch of the Euphrates to Hindiya, and thence north to its Baghdad terminus on the west bank of the Tigris. There were small branches from Shuaiba junction to the R.A.F. aerodrome, from Ur to Nasiriya, and from Hindiya across the barrage to Karbala. A temporary extension to Jabal Sanam for quarrying stone for railway ballast, concrete aggregate, and road metal, built in the period after the Armistice was subsequently removed.

The northern line ran, and still runs, from Baghdad North station on the eastern side of the Tigris to the Diyala and thence to Kirkuk, with a branch from Qaraghan (later renamed Jaloula) to Khanaqin, 5 miles from the Persian boundary. The total length of the metre-gauge sections was about 620 miles. The old second-hand stock of rails originally brought from India during the War of 1914–1918 was being gradually replaced by heavier track as repairs became necessary.

Standard-gauge Section. On the outbreak of war between Great Britain and Germany in 1939 the standard-gauge line had not been completed to Mosul. Soon after the Armistice in 1918 it had been extended to Qala Sharqat, but the Baiji–Qala Sharqat section, 54 miles long, was later considered of unsuitable quality and was dismantled in 1927–1928. The delay in the settlement of the northern frontier of Iraq also had a bearing on railway policy. Overland passengers from Europe and Turkey during this period left railhead at Nusaybin on the South Turkish railway and motored through Mosul to Kirkuk, where they took the metre-gauge line to Baghdad. In 1936, however, under the stimulus of national ownership, the extension of the line to Mosul was again begun, taking a more westerly line than before, and the building of the line from Mosul to Tel Kotchek on the Syrian frontier was commenced about the same time. The first passenger train entered Mosul from Turkey in March 1939, and the section between Tel Kotchek and Mosul was opened to general traffic three months later; but the Baiji–Mosul line was not finished until May 1940, and the first passenger train left Baghdad for the Bosporus in July.

This line through Tel Kotchek cuts across the north-east corner of Syria, and then forms the boundary between Syria and Turkey almost to Aleppo. In 1935 Turkey completed a new line from Fevzipaşa near the Amanus to Diyarbekir and in 1937 linked this at Malatya with the Ankara-Sivas line across the central Turkish plateau. An extension eastwards from Diyarbekir to Cizre (Jezireh ibn Omar), on the Tigris north of Pesh Khabur, was begun soon afterwards and was due for completion to Kurtalan by the end of 1942.[1] Proposals to link up the standard-gauge system of Iraq from Mosul with this new Turkish railway do not appear to have met with approval by the Iraqi Government, which up till 1940 could see no commercial benefit in two railways to the west.

The total length of standard-gauge railway in 1940 was about 340 miles; but much of the track was lightly ballasted and severe restrictions on speed were imposed for this reason.

Railway Construction and Projects since 1940

Three events of prime importance have occurred since the beginning of 1940 which have notably affected Iraqi railways. The first

[1] The railway between Tel Kotchek and Aleppo is described in *Turkey*, vol. ii (B.R. 507 A), pp. 342–5; the Fevzipaşa–Diyarbekir line in the same volume, pp. 345–54; and the extension towards Cizre on pp. 358–60.

was the closing of the Mediterranean to merchant shipping in June 1940; the second was Rashid Ali's *coup d'état* in May 1941 under the instigation of the Axis Powers, and the breaking of the provisions of the Anglo-Iraqi Treaty; the third was the increased importance of Iraq as a link in the chain of supply through Persia to Russia later in the same year, consequent on the German advance through southern Russia.

The closing of the Mediterranean to merchant shipping caused much traffic to Turkey and the Balkans to be diverted to the port of Basra for carriage by rail through Tel Kotchek. A considerable traffic for Palestine and Egypt also went by sea to Basra, where port facilities were extensive but the inland routes inadequate. All the railways were strained to the utmost and some of the traffic was forced to take the desert route through Transjordan. Additional rolling-stock was ordered but took many months to arrive, and Rashid Ali's *coup d'état* temporarily stopped the greater part of this trans-Iraq traffic. By the time things had settled down after the campaigns in Iraq and Persia the situation had been changed by the prime importance of using every route possible to aid Russia. Members of British railway companies flew to Basra to investigate how traffic could be increased on the Persian railways and what would be required by the Persian and Iraqi railways to handle it. As a result of their recommendations the capacity of all railways was greatly increased by the provision of more rolling-stock, more personnel, and more passing-loops. Transport of bulky goods by river-craft on the Tigris was increased, facilities at the river-port of Kut al Imara were installed, and a metre-gauge line was built from there through Aziziya to join the Baghdad–Khanaqin line at Jassimiya, mile 40, about 4 miles north of Baquba. This line had been sanctioned in September 1941, after the disturbances caused by Rashid Ali's usurpation; its importance was increased by the urgency of the Russian situation. Survey of the line began in February 1942 and it was opened for working on 17 December the same year. Much of the rolling-stock and equipment was secured, as in the last war, from the metre-gauge railways in India.

This line from Kut al Imara was planned to feed railhead at Khanaqin, whence haulage of some 600 miles by road took the goods on to Tabriz. Facilities for handling cargoes at the head of the Persian Gulf were also greatly expanded, and the trans-Iranian railway soon had two new standard-gauge termini at Tanuma opposite Basra and at Khorramshahr (Mohammerah) on Persian soil at the mouth of the Karun. Only a small section of the former is within Iraq territory,

but it is interesting because it resulted in the construction of a remarkable bridge over the Shatt al Arab (p. 588). Other railway developments in this area include the extension of the line from Zubair to Jabal Sanam and also to a new port at Umm Qasr near the junction of the Khor Zubair and Khor Abdulla, where shipping-berths, transhipment, and marshalling yards are being constructed.

Other developments have been (i) the construction of a standard-gauge line from Shalchiya (Baghdad) to Hindiya, with greatly increased siding facilities at both terminals and at Musaiyib; (ii) the commencement of a new metre-gauge line from Samawa to Karbala; and (iii) the proposed doubling of the metre-gauge track from Basra to Samawa. These three schemes were parts of a combined project to increase transport to Baghdad, whence distribution could be effected by the standard-gauge line northwards to Tel Kotchek or by the metre-gauge line to Khanaqin. The favourable change in the military situation rendered much of the work unnecessary, and work on (ii) and (iii) was abandoned late in 1943. On the Samawa–Karbala line the track-formation had been completed for about 10 miles at the south end, but no rails had been laid; from Basra to Samawa the formation for doubling the line had been finished, and track had been doubled for 41·5 miles; the standard-gauge line south from Baghdad had been completed, but some of the sidings laid at Hindiya and Musaiyib which are no longer required have already been taken up.

Organization and Staff

In normal times Iraq State Railways are administered by a Director-General of Railways who is responsible to the Minister of Economics and Communications. Railway headquarters are on the west side of the Tigris at Baghdad, the Workshops and Stores departments being at Shalchiya, 2½ miles north-west of Baghdad West station, where all other departmental headquarters are concentrated.

During the War of 1914–1918 the railway staff was entirely British and Indian, but the policy since has been gradually to employ more and more Iraqis as these became sufficiently trained. The total staff of the railways in November 1940 was 8,863, made up by 32 British, 31 Indians, and 8,800 Iraqis, but these figures have been greatly modified since that date by the provision of trained personnel from abroad to deal with war needs.

Maintenance

In 1940 there were three districts, each under a District Engineer for maintenance work, supervised by a Chief Engineer.

The Southern District, with approximate total track mileage of 397 (route mileage 353), includes all the metre-gauge system south of a point half a mile from Baghdad West station. The District Engineer with headquarters at Baghdad West controls two Assistant Engineers stationed at Maqil and Diwaniya. Presumably the standard-gauge line from Shalchiya to Hindiya is also within his district and its track mileage added to the total.

The Central District covers the Baghdad area on both sides of the river, the standard-gauge line to mile 54, that is, about 5 miles beyond Balad, and the metre-gauge line from Baghdad North to Khanaqin and Kirkuk. The new line from Kut to Baquba (125·3 miles) is also presumably within this district. Excluding this new line the total track mileage was about 300 in November 1940 (route mileage 272). The Central District Engineer at Baghdad West controls two Assistant Engineers at Baghdad West and Jaloula junction.

The Northern District covers the standard-gauge line from mile 54 to the Syrian boundary at Tel Kotchek. Total track mileage is about 300 (route mileage 276). The District Engineer and one Assistant Engineer are stationed at Mosul; a second Assistant Engineer is at Baiji.

Subordinate superintendence is carried out by Permanent Way Inspectors, each in charge of about 100 miles of track, and each with two Assistant P.W.I.s. Each of the latter has charge of 8 gangs, each consisting of 1 mate, 1 keyman, and 8 men, who have about 6 miles of track to maintain. The total thus employed in normal times averaged about 1·6 men per mile.

Workshops and Repair Shops (fig. 79)

The main workshops for both gauges are at Shalchiya, 2½ miles north-west of Baghdad West, and were designed for general repairs to 48 locomotives a year. They are well planned, and the equipment of tools and the electrical department are up to date and efficient. Current from the generating station at Shalchiya is carried to Baghdad West for lighting the railway offices and quarters, and for pumping. A rectifier at Baghdad West converts the current from A.C. to D.C., and there is also an emergency generating set. Developments since 1940 are not available for publication.

Running and repair sheds are at the following stations:

Southern District: Maqil and Samawa.

Central District: Baghdad West, Baghdad North, Jaloula junction, and Kirkuk (very limited).

Northern District: Mosul.

Many additional facilities have probably been provided in and around Basra since 1941.

Fuel.

The change-over from coal to oil fuel was made during 1918, for reasons of economy, and by the end of the year shipping was being saved at the rate of about 120,000 tons a year. All locomotives of Iraq State Railways now burn oil fuel which is obtained from the Rafidain Oil Company's depots at Khanaqin and at Muftiya (near Basra). Average consumption is approximately 30 lb. per engine-mile and 40 lb. per train-mile.

Signalling

The telegraphic line-clear message-system is used for working single-line traffic. Distance boards and home signals are provided at all stations on the metre-gauge railways, except Nasiriya and Khanaqin, both branch-line termini, which have distance boards only, and except the following which have both home signals and outer signals:

Southern District: Maqil, Ur junction, Karbala, Hor Rejub (Haur Rajab).

Central District: Baghdad West, Baghdad North, Maamel al Tabouk, and Jaloula junction.

On the standard-gauge line, stations were being provided in 1941 with interlocked points and signals.

Capacity, Speeds, and Working

All lines are single-track, so that the number of trains that can be run depends on the distance between passing-loops. The longest distance in 1943 was $23\frac{3}{4}$ miles for the Basra–Baghdad line, $22\frac{1}{2}$ miles for the Baghdad–Kirkuk line, and 27 miles for the standard-gauge line between Baghdad and Tel Kotchek, but these may have now been reduced by the provision of intermediate passing-loops.

In 1940 the capacity of the various lines was greatly limited by the amount of rolling-stock and the lack of trained personnel, and on the new line to Mosul there were severe restrictions on speed. The arrangements were probably adequate for normal requirements, but for war purposes both rolling-stock and personnel have been increased. Capacity, working schedules, journey times, and speed restrictions are given among other details in the description of each line. They relate to the year 1940, unless otherwise stated. Though

out of date for war-time working, it is uncertain to what extent recent improvements will be permanent.

Locomotives

The following table gives the number and type of locomotives in use in November 1940.

	No.	*Type*	*Tractive effort lb.*	*Maximum axle-load (tons)*
Metre gauge				
	48	4–6–0	15,778	9
	5	4–6–0	15,957	9
Standard gauge				
	3	2–6–0 (Class 600)	27,535	15·79
	7	2–8–0 (Class 800)	37,765	15·79

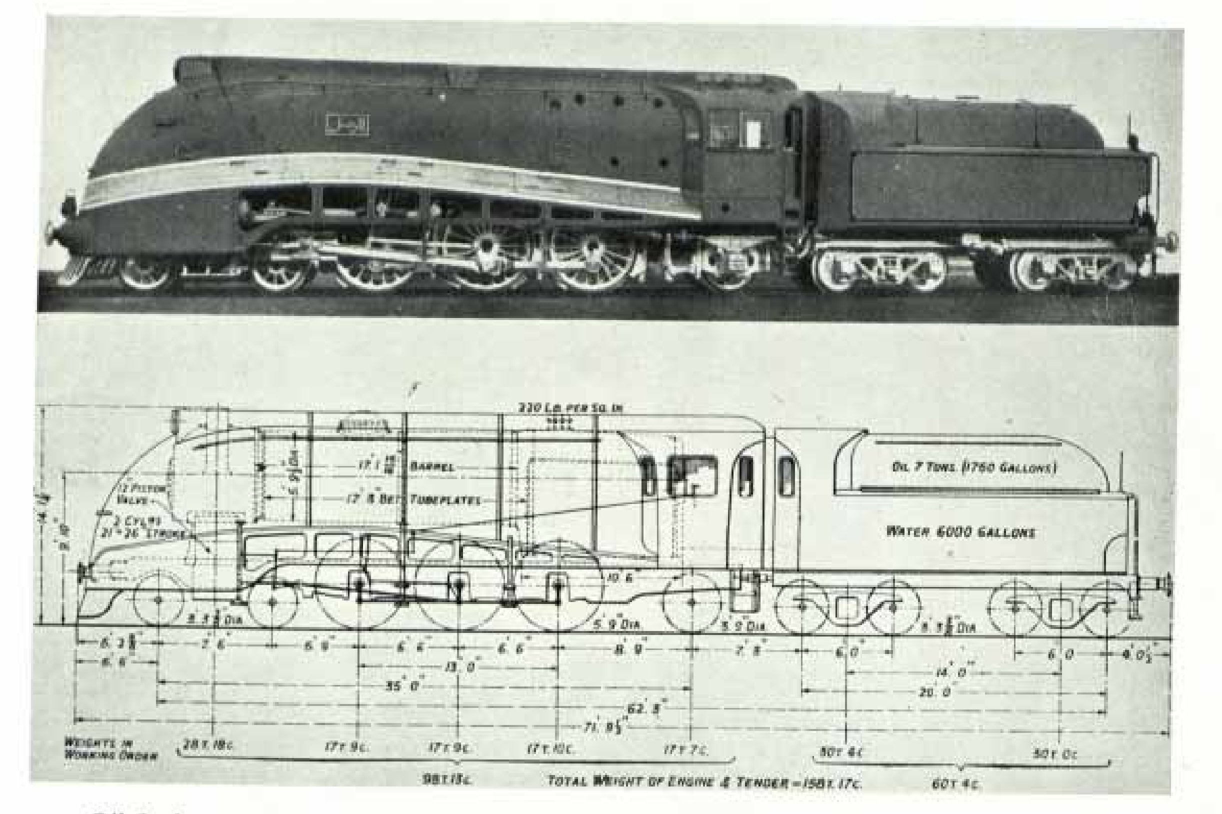
There were also four modern Pacific type locomotives on order from England. The specification for these was to haul 400–500-ton express trains on the Baghdad–Tel Kotchek run at speeds of 60–65 m.p.h. on the level and at 30 m.p.h. on gradients of 1 in 125. The new locomotives, which were completed in 1941, are powerful stream-lined oil-fired express 4–6–2 locomotives, and were built by Robert Stephenson & Hawthorns, Ltd., of Darlington, with oil capacity of 7 tons (1,750 gals.) and water capacity of 6,000 gallons. The total weight of engine and tender is 158 tons 17 cwt. (photo. 234).

Rolling-stock

So many additions and transfers on loan have been made to the rolling-stock on Iraqi railways in recent years for military purposes that it is impossible to give any up-to-date list of what is now available or of what is likely to be retained after the war.

The Hull Bridge over the Shatt al Arab at Maqil (*Basra*) (photos. 235, 236)

This bridge connects Maqil with Tanuma and is designed for both metre-gauge railway and road with loads up to 61 tons, at the same time allowing for the passage of river-craft. There is a maximum difference in water-level of about 12 feet between low tide in the low-water season and high tide in the flood season. There is no rock for abutments or piers, so that piles have to be driven into the alluvium to great depths.



234. *Oil-fired stream-lined 4–6–2 express locomotive, built at Darlington for the Iraqi State Railways, 1941*

235. *The Hull bridge, Basra. Span submerged and river open to navigation*

236. *The Hull bridge, Basra. Submersible span in position for road and rail traffic*

The bridge was built in 1943 and is divided into two sections by Coal Island, the total length from shore to shore of the Shatt al Arab being about 800 yards. The west section between Maqil and Coal Island is 1,150 feet long, and rests on 113 trestles about 10 feet apart, each trestle being composed of 4 vertical piles driven below low-water-level to depths up to 61 feet.

The east section is made up of 430 feet of similar piled trestling, a 50·5-foot Inglis span, a 90·8-foot sinking-span, a second 50·5-foot Inglis span, and then 220 feet more of piled trestling, making a total length of about 846 feet. The Inglis spans, which have a clearance of 40·3 feet between piers, permit small mastless river-craft of shallow draught to pass under the bridge while it is in use by road and rail traffic. The bridge is broken by submerging the sinking-span below water-level, to a depth which permits steamers with a draft of 8 feet to pass over it. The maximum movement necessary for this at low tide during the low-water season is 28 feet. When submerged there is a waterway between the sinking-span abutments of 74 feet.

The sinking-span is composed of 4 large box-girders braced together for even distribution of load, weighing about 35 tons in all. This rests at each end on compound transverse girders, spanning recesses in the abutment piers. These piers are composed of 34 timber piles driven to a depth of 74 feet below low-water level, encased in Larssen coffer dams. Each pier has two steel towers of gantry-like design which support pulleys for raising and lowering the bridge. To break the bridge, the sinking-span is raised a few inches, the compound girders are withdrawn, and the span is lowered in the abutment recesses to the required depth.

The roadway over the pile trestling is 23 ft. 6 in. wide, of asphalt on timber decking resting on timber road-bearers; that of the Inglis spans is 11 feet wide, of asphalt on timber decking on steel joists; that of the sinking-span is 10 ft. 3 in. wide, of asphalt between joists on timber baulks.

It is uncertain whether this bridge will be maintained after the war.

Baghdad Railway Wagon Ferry

The distance between Baghdad West and Baghdad North by the connecting lines and Wagon Ferry is about 4 miles. The ferry, just north of the town, consists of 2 barges fixed together, taking 48 four-wheeled wagons, with a total weight of 540 tons. Normal turn-round takes about 6 hours, but could be decreased with special labour and lighting arrangements to 5 hours.

In the low-water season the ferry is in constant use, but it is liable to serious interruption during the flood season, March to May, when it may be unusable for three weeks at a time, and during the rains in January and February for shorter periods. At such times no vehicles can be transported from one side of the river to the other. Passengers and animals are not carried by the ferry, and must detrain and use the road-bridges.

Description of Railways

The description of the railways which follows is divided into three parts: (*a*) details of the line as a whole, distances, branch-lines, junctions, permanent way, capacity, &c.; (*b*) general description of the line and the country passed; (*c*) details of the stations and their facilities, and of the chief engineering works.

As already mentioned, the war has caused many changes, only a brief outline of which is available for publication. New passing-loops have been added to increase capacity since 1940 and to speed up working. The capacities given in the description may, therefore, be taken as the minimum possible. For the same reason ordinary passing-loops have been omitted, and only loop-sidings in being in 1940 have been entered, since it is not known how many of the additional passing-loops will be maintained after the war.

In the second column of the detailed description is given the station name. The transliteration of names from Arabic into Roman characters appears to be in an even greater state of confusion in the Railway Department than elsewhere in Iraq, and accounts differ widely. Not only do the spellings differ, but the Arabic article appears to have been sometimes amalgamated with the place-name.

The following abbreviations are used in the last column:

W.	Watering facilities are shown in brackets after the letter W.
(T.5,000 gls.)	Water tank, capacity 5,000 gallons.
LS.(2); DES.	2 loop sidings; dead-end siding.
PL.	Passing-loop. Given only occasionally, since they occur at almost every station.
SR.(3); SR (260 ft.)	3 side-loading ramps; side-loading ramp, length 260 feet.
ER.(2)	2 End-loading ramps.
GS.(3,000 sq. ft.)	Goods sheds, covered area 3,000 square feet.
ES.	Engine-shed.
RpS.	Repair-sheds.

Tbl.	Turntable.
Tr.	Turning triangle.
Sdgs.	Sidings (details unknown).

1. BASRA (MAQIL)–BAGHDAD WEST

Route

Basra–Ur Junction . . .	123·0 miles	197·9 kilometres
Ur Junction–Diwaniya . .	111·3 ,,	179·1 ,,
Diwaniya–Hindiya Junction .	72·6 ,,	116·8 ,,
Hindiya Junction–Baghdad West	46·5 ,,	74·8 ,,
	353·4	568·6

Branch-lines

(*a*) Basra (Maqil)–Basra City, 5·7 miles (9·2 km.); Basra (Maqil)–Tanuma.

(*b*) Shuaiba Junction–Zubair, 7·5 miles (12 km.), whence extensions for military purposes have been made to Jabal Sanam, *c.* 18 miles (29 km.) and to Umm Qasr, *c.* 30 miles (48 km.).[1]

(*c*) Ur–Nasiriya, 10 miles (16 km.).

(*d*) Hindiya–Karbala, 22·3 miles (35·9 km.).

Permanent Way and Stations

Metre gauge. Single track.[2] Flat-bottom rails, varying from 41 lb. to 75 lb. per yd., spiked to wooden sleepers; the lighter rails are now mostly replaced by standard 75-lb. rails. Some ballast of low-grade was reported in 1940, but has probably been improved.

Maximum axle-load, 9 tons; minimum radius of curves, 1,432 feet; maximum gradient, 1 in 200.

Maximum distance between passing-loops (1940), 23·8 miles (probably reduced); average length of loops at stations, 1,800 feet.

Speed and Capacity (Nov. 1940)

Normal overall times (including stops): mail train, 14 hours; mixed train, 22 hours; goods train, 27 hours. Normal working allows for 1 train of each kind (3 trains in all) travelling each way daily (i.e. total of 42 trains a week). Maximum speed restriction, 35 miles per hour, because of low-grade ballasting. Maximum capacity of line (Nov. 1940, limited by amount of rolling-stock), 5 trains each way daily. Normal gross load of trains: mail

[1] See note on these branches, p. 585.

[2] In 1942 the doubling of the line from Basra to Samawa (mile 179·6) was sanctioned. The formation was completed and the track laid for 41·5 miles, before construction was abandoned. It is not known whether the track laid will be used or removed.

train, 210 tons; mixed train 550 tons; goods train 600 tons. Maximum gross load, 750 tons.

Water-supplies

There are water storage or settling tanks at the following points:

Ur Junction, 2 tanks of 5,000 gallons each.

Barbuti, 2 tanks of 109,000 gallons each, for pumping to Samawa station.

Rumaitha, 2 tanks of 80,000 gallons each.

Diwaniya, 2 tanks of 26,000 gallons each.

Hindiya, 3 tanks of total capacity 40,840 gallons.

Baghdad West, 3 tanks of total capacity 200,000 gallons.

Bridges

Only the more important bridges are noted in the detailed description. Almost all of these have concrete abutments and piers. There are also a great number of small bridges and culverts, particularly in the middle section of the line from Samawa to Hindiya Junction.

GENERAL DESCRIPTION

The route taken by this main-line metre-gauge railway and its principal branch may be divided conveniently into four sections: (i) Basra to Samawa, (ii) Samawa to Hindiya junction, (iii) Hindiya junction to Karbala, and (iv) Hindiya junction to Baghdad West.

(i) *Basra to Samawa.* After leaving the Maqil terminus the line crosses the low ground inland of Basra by a high embankment south-westwards to Shuaiba junction, a distance of nearly 10 miles. Recent activity at Basra has led to considerable development at the Maqil terminus, and the branch-line from Shuaiba junction to the R.A.F. station at Shuaiba has been extended to Zubair and thence to Rafidhiya, where it branches to Jabal Sanam and to Umm Qasr. The line to Jabal Sanam is used mainly for bringing stone from the quarries for constructional purposes. Umm Qasr is a new temporary port near the junction of the Khor Abdulla and Khor Zubair, with a railway embankment to deep-water berths (of which 6 were projected in 1942), transhipment yard, end-loading ramp, marshalling yard, and turning-triangle. In 1943 the total track mileage laid from Zubair to Umm Qasr was about 34.

From Shuaiba junction to Samawa the main line keeps above the inundation level parallel to and generally 2 or 3 miles from the southern shore of the Hammar lake, until at Ghubaishiya (mile 50·2) it diverges west-south-west to Jaliba (m. 84·6) to avoid low, broken, swampy ground. Here it turns north-west and runs midway between

the edge of the desert sand-belt and the Euphrates to Ur junction (m. 123), where the old line to Nasiriya is now operated as a branch. From Ur the main line keeps dead straight to Khidhr on the Euphrates (m. 160·7) and then cuts across the bends of the river almost direct to Samawa.

There are few engineering difficulties and no large obstacles to cross. The country is open on both sides throughout, that on the south rising to featureless desert. During the War of 1914–1918 there were many more stations and passing-loops, but nine of them were abandoned during the inter-war period. There are no places of any importance on this section, but Suq ash Shuyukh, which is off the railway, can be reached by unmetalled road from Tel al Lahm, and Nasiriya is on a branch-line. From Zubair there is a main motor-road to Kuwait, and caravan routes lead southwards into the desert from Zubair, Jaliba, Tel al Lahm, Ur, Bat-ha, and Samawa, some of them being fit for motors in dry weather.

(ii) *Samawa to Hindiya Junction.* Just before Samawa the line enters the irrigated region of the upper delta. After crossing the two main channels of the Euphrates it follows the general course of the Hilla canal, or Shatt al Hilla. At Rumaitha (m. 196) it crosses a perennial distributary of the Hilla canal and thence keeps a fairly straight course north-west and north, never far from the right bank of the Hilla canal, to Diwaniya (m. 234·3) and Hashimiya. There are numerous small bridges and culverts over irrigation channels. Near mile 260 there is a short branch siding to the Daghghara barrage (2 miles). The Hilla canal is crossed near Hashimiya (m. 271·2), after which the line keeps east of the canal, sometimes as much as 4 miles distant from it, but it closes on the canal at Hilla and at the Hindiya barrage.

(iii) *Branch-line, Hindiya Junction to Karbala.* This branch makes use of the Hindiya barrage to cross the Euphrates, and has to cross the four canals controlled by the barrage: the Hilla and Georgiya (Jarjiya) canals leaving the left bank of the Euphrates, the Bani Hasan and Husainiya leaving the right. The line then keeps parallel to the Husainiya and about 3 miles distant from it, following the desert edge and making a detour round Karbala to its terminus south-west of the town.

(iv) *Hindiya Junction to Baghdad West.* At Musaiyib the line leaves the Euphrates and runs north through the irrigated tracts commanded in succession by the Iskandariya, Latifiya, Mahmudiya, and Yusufiya canals, all of which have to be crossed. Near Haur Rajab (m. 341·1) the line enters the riverain belt irrigated from the Tigris, and at Daura

it reaches the banks of the river. The Nahr Washash bridge spans the channel draining the Aqarquf lake into the Tigris.

DETAILED DESCRIPTION

Miles from Basra (Maqil)	*Stations*	*Remarks*
0·0	BASRA (MAQIL)	W. (T.55,500 gls., port supply unlimited). LS.(3); DES.(11); SR.(100 ft.); ER.; GS.(750 sq. ft.); ES.; RpS.; 2 truck cranes (5-ton, 10-ton). Branch-line over Hull bridge to Tanuma interchange point; branch-line 5·7 miles to Basra city. For port description, *see* pp. 511 ff.
1·5	..	Qarmat Ali bridge, 40 ft., single span, plate girders. Line crosses depression by embankment 8 miles long.
9·9	SHUAIBA JUNCTION	LS.(3); DES.(6); SR.(250 ft.). Junction for R.A.F. station Shuaiba, Zubair, Jabal Sanam, and Umm Qasr. Line is embanked for about 4 miles.
19·6	TUBA (AT TUBA)	..
25·5	..	Nukhaila bridge, 40 ft., single span, plate girders.
c. 26·5	*Nukhaila*	Disused.
c. 31·5	*Qurainat*	Disused.
c. 36·5	*Rumaila*	Disused.
40·7	ARTAWI (AR RATAWI)	..
50·2	GHUBAISHIYA	..
c. 57	*Yadilla*	Disused.
c. 62	*Kelat Loh*	Disused.
66·2	LAQIT (LUQAIT)	..
c. 71·7	*Kuraiz*	Disused.
c. 76·8	*Hamidiya* (*Hammadiya*)	Disused.
84·6	JALIBA	W. (T.16,000 gls., trucked from Maqil). LS.(2); ER.
c. 89·5	*Qabr*	Disused.
c. 95·5	*Tel al Jabara*	Disused.
101·5	TEL AL LAHM	..
123·0	UR JUNCTION	W. (T.19,500 gls., filled from storage tanks and for emergency use only). LS.(5); DES.(12); SR.(180 ft.); ER. Junction for Nasiriya (10 miles): W. (T.11,000 gls.); SR.(550 ft.); ER. For town description, *see* p. 547. For description of Ur, *see* p. 626.
142·3	BAT-HA	SRs.(44 ft., 50 ft.).
151·9	DARRAJI HALT	..
160·7	KHIDHR	SRs.(55 ft., 65 ft.); ER.
170·2	KHAFOORA (KHAFURA, JABIR) HALT	..

Miles from Basra (Maqil)	*Stations*	*Remarks*
179·6	SAMAWA	W. (T.33,000 gls. pumped from settling tanks at Barbuti). LS.(4); DES.(2); SRs.(125 ft., 320 ft.); ER.; ES.; RpS.; truck crane (5-ton).
c. 182·0	..	Barbuti bridge over the Euphrates 538 ft. (5 × 100 ft. + 1 × 38 ft.), 6 deck trusses, decked for road traffic.
c. 184·5	..	Imam Abdulla bridge over branch of Euphrates, 650 ft. (6 × 100 ft.), 6 deck trusses, decked for road traffic.
188·1	HAJJAMA (WAWIYA) HALT	..
192·1	DUBAIS HALT	..
196·0	RUMAITHA	W. (T.2 × 11,000 gls., pumped from settling tanks). LS.(2); DES.(2); SRs.(100 ft., 180 ft., 300 ft.); ER. Rumaitha bridge over branch of Hilla canal, 80 ft. (2 × 40 ft.), plate girders, decked for road traffic.
199·8	ARIDHIYAT HALT	..
206·0	ABU TABIKH	SR(70 ft.); ER.
211·4	AL AKSHA HALT	..
216·0	HAMZA	..
223·0	NABI MADIYA HALT	..
228·9	ABUD SHANAYIN HALT	..
234·3	DIWANIYA	W. (T.33,000 gls., pumped from settling tanks). LS.(3); DES.(12); SRs.(460 ft., 110 ft.); ER.(2). For town description, *see* p. 528.
245·4	KHAN JADWAL HALT	..
249·6	AUNI IBN ALI HALT	..
258·1	SHARIFIYA	..
261·0	..	Badat bridge, 60 ft. (3 × 20 ft.), rolled steel joists.
262·4	QOCHAN (QUCHAN)	..
271·2	..	Hashimiya bridge over Hilla canal 155 ft. (2 × 22 ft. + 3 × 38·5 ft.), plate girders, one swing span, decked for road traffic.
271·6	HASHIMIYA	..
277·2	BRAMANA HALT	..
286·8	HILLA	W. (T.2 × 6,400 gls.). LS.(4); DES.(5); SR.(590 ft.); ER. For town description, *see* p. 533.
290·0	BABYLON HALT	For description of the ancient site, *see* p. 630.
291·2	..	Shakha canal bridge, 40 ft., single span, plate girders.
298·0	KHAN MAHAWIL	..
303·1	HUSSAN AL BAIGAT HALT	..
306·9	HINDIYA JUNCTION	W. (T.11,200 gls., pumped from settling tanks). LS.(2); DES.(3). Junction for the Hindiya barrage and Karbala.

Miles from Basra (Maquil)	*Stations*	*Remarks*
0·0	HINDIYA JUNCTION	..
1·0	..	Hilla canal bridge, 240 ft. (3 × 31 ft. + 2 × 58 ft. + 1 × 32 ft.), plate girders.
1·1	..	Georgiya canal bridge, 60 ft., single span, plate girders.
1·2	..	Hindiya barrage, 825 ft., and bridge 26 ft.; total length 851 ft. For details of the barrage, *see* p. 438.
1·8	..	Bani Hasan canal bridge, 60 ft. (3 × 20 ft.), plate girders.
3·0	..	Husainiya canal bridge, 60 ft., single span, plate girders.
11·1	IMAM AUN HALT	..
22·3	KARBALA	W. (T.4,800 gls., supplied by Municipality). For town description, *see* p. 536.
310·8	MUSAIYIB	SRs.(90 ft., 63 ft.); ER.
319·5	ISKANDARIYA	..
326·8	LATIFIYA ESTATE HALT (LATIFIYA)	..
327·0	..	Latifiya canal bridge, 76 ft. (2 × 38 ft.), plate girders.
330·5	MAHMUDIYA	SR.(75 ft.).
335·3	YUSUFIYA	..
337·9	AL GHUZALAT HALT	..
341·1	HOR REJUB (HAUR RAJAB)	SR.(50 ft.).
c. 343·0	..	Abu Sukhair bridge, 144 ft. (9 × 14·5 ft.), rolled steel joists.
347·1	DAURA HALT	..
c. 350·0	..	Nahr Washash bridge, 206 ft.(40 ft. + 98 ft. + 59 ft.), 2 plate-girder spans, 1 through truss.
353·4	BAGHDAD WEST (metre-gauge)	W. (T.22,000 gls. + 11,000 gls.). LS.(5); DES.(14); ES.; RpS.; GS.(4,018 sq. ft.); SRs.(150 ft., 1,000 ft., 200 ft., 200 ft.); ER.; truck cranes (5-ton, 10-ton); Scotch derrick (3-ton); electric gantry (3-ton). Also 3 sheds each of 48,000 sq. ft. for bonded cargo. For details of wagon-ferry, *see* p. 589; town description, p. 499; town plan, fig. 79.

2. BAGHDAD NORTH–KIRKUK

Route

Baghdad North–Jaloula (Qaraghan) Junction . .	91·9 miles	147·9 kilometres
Jaloula Junction–Kirkuk .	108·2 ,,	174·1 ,,
	200·1	322·0

Branch-lines

Baghdad East–Hinaidi, 5·5 miles (8·9 km.).
Jassimiya (Baquba)–Kut al Imara, 125·3 miles (201·6 km.).[1]
Jaloula–Khanaqin, 17·2 miles (27·7 km.).

Permanent Way and Stations

Metre gauge. Single track. Flat-bottom rails, varying from 41 to 75 lb. per yd., spiked to wooden sleepers; the lighter rails are being replaced by standard 75-lb. rails. In parts the track is gravel-ballasted; elsewhere sleepers are laid on natural surface with low-grade ballasting.

Maximum axle-load, 9 tons; minimum radius of curves, 716 feet; maximum gradient, 1 in 200.

Maximum distance between passing-loops, 22·5 miles; average length of loops at stations, 1,800 feet.

Speed and Capacity

Normal overall times (including stops): mixed trains only:
Baghdad North–Jaloula, 5 hours.
Jaloula–Kirkuk, $5\frac{1}{2}$ hours (night), $7\frac{1}{2}$ hours (day).

Normal working (1940) allows for 2 trains each way daily between Baghdad and Kirkuk (1 by day and 1 by night), and 2 trains each way daily between Baghdad and Khanaqin. There are thus 4 trains each way between Baghdad and Jaloula junction.

Maximum speed restriction, 35 miles per hour, because of low-grade ballasting. Maximum capacity of line (Nov. 1940, limited by amount of rolling-stock), 4 trains each way daily, either to Kirkuk or to Khanaqin.

Normal maximum gross load of trains, 550 tons.

Water-supplies (1940)

There are water storage or settling tanks at the following points:
Baquba, 1 tank (capacity unknown).
Muqdadiya, 2 tanks, total capacity 800,000 gallons.
Jaloula, 2 tanks, total capacity 53,100 gallons.
Tuz Khurmatli, 2 tanks, total capacity 43,000 gallons.
Ali Sarai, 2 tanks, total capacity 185,000 gallons.

GENERAL DESCRIPTION

This railway follows the general course of the Diyala through the Jabal Hamrin to Jaloula, formerly known as Qaraghan, about 92 miles from Baghdad North. Near Baquba it is now (1944) joined by the new metre-gauge railway from Kut al Imara (Railway No. 3). At Jaloula the main line connects the chief towns of the Assyrian plains,

[1] For a note on this line, *see* Railway No. 3, p. 602.

and was, until the completion of the standard-gauge line to Mosul, the normal route taken by passengers coming east by the Simplon and Taurus expresses.

(i) *Baghdad North to Jaloula.* The line passes through the outskirts of Baghdad to Baghdad East, whence it sends a short branch to

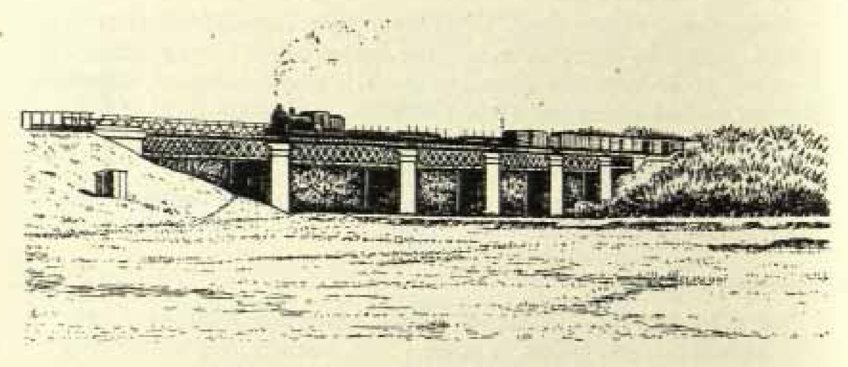


FIG. 91. *Marshall's bridge over the Diyala at Baquba*

Hinaidi cantonment and airfield. The main line turns north-east across the open plain, reaches the Diyala at Cassell's Post, and keeps along the west bank of this river, cutting across the loops, as far as Baquba. Here it crosses the Diyala by 'Marshall's Bridge', 180 yards long, decked to take road traffic (fig. 91). North of Baquba it diverges 7 miles from the river to avoid the most densely irrigated lands, and for much of the distance runs side by side with the motor-road to Muqdadiya (Shahraban, mile 62·7). It then crosses the Shahraban and the Ruz canals (m. 66 and m. 67·5) to Mansur (m. 68·4), and follows a bend of the Diyala round the north-west end of Table Mountain. Between miles 72 and 77 the line passes through the Jabal Hamrin defile, but after Kurdara (m. 77·7) enters more open country and runs straight to Sadiya (Qizil Ribat). From Mansur to Jaloula the line keeps close to the Diyala.

(ii) *Jaloula to Khanaqin.* North of Jaloula the Diyala flows between the Jabal Jubba and Jabal Darawishka. The line to Khanaqin rounds the north-west shoulder of the latter range, crossing the Alwand river 1½ miles from its junction with the Diyala, and then traverses the open plain to approach Khanaqin from the north. For the greater part of the run from Jaloula the track is laid on an embankment with many culverts.

(iii) *Jaloula to Kirkuk.* The main line leaves the Khanaqin line

immediately after Jaloula station, bends west across the Diyala by a bridge 266 yards long with 7 concrete piers, and then keeps north-west along the foot of the Jabal Jubba, crossing many small dry stream-beds. East of Qara Tepe it passes without difficulty between the Jabal Jubba and Jabal Manzil and after traversing the Kifri plain turns north-west to cross the broad bed of the Aq Su by a bridge 320 yards long, built on 22 concrete piers. After leaving the town of Tuz Khurmatli (m. 147·3), which is on the right bank of the Aq Su near the bridge, the line diverges from the hills, and, passing Iftikhar, crosses the Tauq Chai by two long bridges totalling nearly 950 yards, about 5 miles south of Tauq. There is much low ground between the Tauq Chai and Qadha Chai, which becomes sodden after rain. The line turns north after crossing the Kaur Darra (*c.* m. 173·8), crosses the Qadha Chai about 10 miles farther on, and bends north-north-east to follow the right bank of the Qadha Chai. Kirkuk railway station is about 2 miles west of the river, beyond Qarwait Kalahiya.

DETAILED DESCRIPTION

Miles from Baghdad North	*Stations*	*Remarks*
0·0	BAGHDAD NORTH	W. (T.2×11,000 gls., supplied by Municipality). LS.(3); DES.(22); SRs.(260 ft., 410 ft.); ER.; GS.(3,038 sq. ft.); ES.; RpS.; truck crane (5-ton), gantry-crane (10-ton), petrol electric mobile crane (3½-ton). For details of wagon-ferry, *see* p. 589; town description, p. 499; town plan, fig. 79.
1·6	BAGHDAD EAST	LS.(3); DES.(4); SR.(234 ft.). Branch to Hinaidi, 5·5 miles.
c. 2·2	..	Bridge over flood-escape, 200 ft. (10×20 ft.), rolled steel joists.
3·4	MAAMEL AL TABOUK	..
7·0	HALT MILE 7	..
11·5	SIDAIRA HALT	..
13·9	CASSELL'S POST	..
20·0	HALT MILE 20	..
25·2	KHAN BANI SAAD HALT	Police post is about 6 miles south-west.
30·2	SHIFTA HALT	..
35·8	..	Marshall's bridge over the Diyala, 540 ft. (4×100 ft.+2×75 ft.), 6 deck trusses, decked for road traffic (fig. 91).
36·4	BAQUBA	W. (T.6,400 gls., pumped from settling-tank filled by gravity from canal). LS(2); DES(2); SR.(100 ft.); ER.; GS.(841 sq. ft.). For town description, *see* p. 526.
c. 40·0	JASSIMIYA	W. (T.10,000 gls. filled from ground tanks). Junction for the new line to Kut al Imara (Railway No. 3).

Miles from Baghdad North	*Stations*	*Remarks*
45·0	ABU HAWA HALT	..
49·5	UMM AIYASH HALT	..
53·4	ABU JISRA (JISR)	LS.; DES.; SR.(60 ft.); ER.(2); troop sdg.
56·0	ABU HUSAWAYA HALT	..
59·8	MUQDAD HALT	..
62·7	MUQDADIYA (SHAHRABAN)	W. (T.11,000 gls., pumped from settling tanks). LS.; DES.(3); SR.(62 ft.); troop sdgs.
c. 66·0	..	Bridge over Shahraban canal, no details.
67·2	..	Bridge over Haruniya canal, 80 ft. (2×20 ft. +1×40 ft.), 2 rolled steel joists, 1 plate girder.
67·7	..	Bridge over Ruz canal, 180 ft. (3×60 ft.), plate girders.
68·4	MANSUR (TABLE MOUNTAIN)	LS.(2); SR.(15 ft.); ER(2).
69·5	..	2 tunnels, through shoulder of Table Mountain, 123 yds. and 52 yds., height above rail-level 14 ft. 6in.
70·5	..	Bridge, 160 ft. (4×40 ft.), plate girders. Several other small bridges.
77·7	KURDARA (KURDARREH)	..
80·7	ZAWIYA HALT	..
86·0	SADIYA (QIZIL RIBAT)	SR.(310 ft.); ER.; troop sdgs.
91·9	JALOULA (QARAGHAN) JUNCTION	W. (T.33,200 gls.+11,000 gls., softened and pumped from settling tanks). LS.(5); DES.(10); SR.(100 ft.); ER.; ES.; RpS.; Truck crane (10-ton). Junction for Khanaqin.

Baghdad North	*Jaloula*	*Stations*	*Remarks*
91·9	0·0	JALOULA JUNCTION	..
96·4	4·5	..	Bridge over Alwand river, 360 ft. (6×60 ft.), plate girders, decked for road traffic. Line is embanked almost continuously from mile 98 across the Khanaqin plain.
99·1	7·2	SHAIKH JAS(S)IM HALT	..
101·1	9·2	RAHAMLA HALT	..
103·2	11·3	BABLAWI HALT	..
109·1	17·2	KHANAQIN	W. (no details). LS.; DES.(4); SRs.(590 ft., 615 ft.); ER.; GS.(14,106 sq. ft.). R.O.C. oil depot. Scotch derrick (2½-ton). Station is about ¾ mile from right bank of Alwand river. For town description, *see* p. 539.

Miles from Baghdad North	*Stations*	*Remarks*
c. 93·0	..	Qaraghan (Jaloula) bridge over Diyala, 800 ft. (8 × 100 ft.), 8 deck trusses, decked for road traffic.
93·6	Halt Mile 93	..
c. 102·5	..	Bridge over stream from Jabal Jubba, normally dry, 60 ft. (3 × 20 ft.), rolled steel joists.
c. 105·2	..	Bridge over deep ravine bed, 80 ft. (2 × 20 ft., 1 × 40 ft.), rolled steel joists.
107·2	Qara Tepe	SR.(56 ft.). Qara Tepe town is about 5 miles west.
c. 109	..	Bridge over Diyala distributary, no details.
110·5	Qara Yatak Halt	..
c. 116·2	..	Bridge over Narin Salahiya from Jabal Shakal, 220 ft. (2 × 60 ft. + 1 × 100 ft.), 2 plate girders, 1 deck truss.
123·4	Eski Kifri	W. (T.4,800 gls., pumped from tube-well). LS.(2); DES.; SR.(320 ft.); ER.(2); GS.(1,200 sq. ft.); troop sdg. Kifri town is about 7 miles north-east; for description, *see* p. 540.
c. 131·2	..	Bridge over Kura Chai, 160 ft. (7 × 22 ft.), plate girders.
133·8	Tel Manzil Halt	..
140·4	Sulaiman Beg	SR.(199 ft.); ER.(2). R.O.C. oil depot. Road from Abu Ghuraib or Injana pass over Jabal Hamrin meets railway and runs alongside to Tuz Khurmatli.
c. 146·2	..	Bridge over Aq Su, 960 ft. (23 × 40 ft.), plate girders, decked for road traffic.
147·3	Tuz Khurmatli	W. (T.4,800 gls., emergency). LS.(2); DES.(2); SR.(350 ft.).
153·0	Albu Sabba (Sabah) Halt	..
158·5	Para Para Halt	Para Para bridge, 120 ft. (2 × 60 ft.), plate girders.
c. 159·0	..	Bridge over Wadi Namiq, 66 ft. (2 × 33 ft.), plate girders.
164·1	Iftikhar	SR.(220 ft.).
c. 165·8	..	2 bridges over broad bed of Tauq Chai, 1,920 ft. (48 × 40 ft.) and 920 ft. (23 × 40 ft.), all plate girders.
171·9	Ali Sarai	W. (T.4,800 gls.). LS.; DES.; SR.(120 ft.); ER.
c. 173·8	..	Bridge over Kaur Darra, 60 ft., single span, plate girders.
183·4	Bashir	SR.(175 ft.); ER.
c. 183·8	..	Bridge over Qadha Chai, 120 ft. (2 × 60 ft.), plate girders.
190·7	Chardaghla Halt	..
200·1	Kirkuk	W. (T.33,000 gls.). LS.(4); DES.(14); SRs.(247 ft., 210 ft., 192 ft., 485 ft., 240 ft., 99 ft.); ER.; GS.(3,400 sq. ft.); ES.; RpS. (limited); truck crane (5-ton). For town description, *see* p. 541.

3. JASSIMIYA (BAQUBA)–KUT AL IMARA

Route

Jassimiya (Baquba)–Aziziya .	72·6 miles	116·8 kilometres
Aziziya–Kut al Imara . .	52·7 ,,	84·8 ,,
	125·3	201·6

Branch-lines

None.

Permanent Way and Stations

Metre gauge. Single track. Details of rails, sleepers, ballast, &c., not available. There are 6 watering stations, including the 2 termini (listed below) and 7 intermediate passing-stations, which were not yet in use early in 1944. Details of them are not yet available. There are no large bridges, the longest being a single-girder bridge of 16 feet; most irrigation channels have pipe-culverts. Gradients are easy, the maximum being 1 in 200. The mileage of loops, yards, sidings, &c., is 22·2, but details are not yet available.

Capacity

Early in 1944 the capacity was limited to 2 trains a day each way, but it could be increased to 3.

GENERAL DESCRIPTION

Details of the alinement are not yet available, but the line leaves the Baghdad–Kirkuk about 4 miles beyond Baquba and leads southwards, keeping about 5 miles east of the Diyala to Naif (mile 18·8) and then gradually diverges a little east of south, crossing the old Nahrwan canal, to Tel Cheliab (m. 42·2), which seems to be about 8 miles from the Tigris north of Lajj. Thence the line follows the general course of the Tigris, keeping clear of the river and its riverain cultivation, to Aziziya, Zubaida, and Kut al Imara. At Naif, Tel Cheliab, and Aziziya, water is obtained from irrigation channels, but details of tank capacity are not known.

DETAILED DESCRIPTION

Miles from Jassimiya	*Stations*	*Remarks*
0·0	JASSIMIYA	W. (T.10,000 gls., filled from ground tanks).
18·8	NAIF	W. (T.).
42·2	TEL CHELIAB	W. (T.).
72·6	AZIZIYA	W. (T.).
104·2	ZUBAIDA	W. (T.).
125·3	KUT AL IMARA	W. (T.(3), 25,000 gls., filled from ground tanks). ES.; Sdgs.; high-level oil-tank (5,000 gls.); cranes (10-ton, 7-ton) at Kut dock. For town, *see* p. 543.

4. BAGHDAD WEST–TEL KOTCHEK[1]

Route

Baghdad–Samarra (1915) .	73·7 miles	118·6 kilometres
Samarra–Baiji (1918) . .	60·1 ,,	96·7 ,,
Baiji–Mosul (1940) . .	122·7 ,,	197·5 ,,
Mosul–Tel Kotchek (1939) .	73·9 ,,	118·9 ,,
	330·4	531·7

The years given in brackets are those in which each section was opened for traffic.

Branch-lines

None; but there are small branch-sidings at Samarra and Baiji for special purposes.

Permanent Way and Stations (from reports in 1940, 1941)

Standard gauge (4 ft. 8½ in.). Single track. Flat-bottom (F.B.B.S.) rails, 75 lb. per yard. *Sleepers*: steel from Baghdad to Samarra, timber from Samarra to Mosul, steel from Mosul to Tel Kotchek. *Ballast*: shingle Baghdad–Samarra; elsewhere miscellaneous local material, part limestone, part shingle, but some of low grade. *Earthwork*: generally a clayey loam from borrow-pits alongside.

Maximum axle-load, 15·79 tons; minimum radius of curves 930 feet; maximum gradient, 1 in 125.

Maximum distance between passing-loops, 31·5 miles (June 1941), but additional passing-loops were being constructed to reduce the distance to 8·5 miles between Baghdad and Mosul, and to 11 miles between Mosul and Tel Kotchek. Average length of loops at stations, 2,000 feet (Nov. 1940).

Speed and Capacity

Normal overall times (including stops) in November 1940 were as follows:

Baghdad–Mosul, mixed trains 17½ hours; goods trains 26½ hours.

Baghdad–Tel Kotchek, mixed trains 23½ hours; goods trains 34½ hours.

Normal service in November 1940 was 1 mixed train each way daily between Baghdad and Mosul, and 3 mixed and 1 goods train each way weekly between Baghdad and Tel Kotchek. Severe restrictions on speed were enforced between Baiji and Mosul at that time because of poorly ballasted track, but may have been lifted since.

Maximum capacity of the line throughout was then limited to 1 train

[1] The details given below are compiled from reports dated November 1940 and June 1941. Improvements were then being planned, but subsequent details are not yet available for publication.

daily each way by shortage of locomotives and rolling-stock, but orders were placed in 1941 for modern locomotives and additional stock (p. 588); and by the construction of new passing-loops it was hoped to raise the capacity to 12 trains a day each way from Baghdad to Mosul, and 10 from Mosul to Tel Kotchek.

Normal maximum gross load of trains, 900 tons.

GENERAL DESCRIPTION

Bridges. There are many bridges and culverts; only the more important are given in the detailed description. They are generally of deck-span type. Exceptions are the bridges over the Wadi Jirnaf at mile 19·45 and over the Wadi Qasab at mile 215, which are 120-foot single-span steel through-trusses. From Baghdad to Samarra, and from Mosul to Tel Kotchek, spans are of metric standard types; between Samarra and Mosul the deck bridges have standard spans of 10, 20, 30, 40, and 60 feet. Abutments south of Mosul are of mass concrete; north of Mosul they are of stone.

Distances. There is considerable confusion over the distances. From Baghdad to Samarra they were originally in kilometres. These were converted to miles and the track to Baiji was ruled in miles. The new track from Baiji to Mosul, and from Mosul to Tel Kotchek, seems to have been first surveyed in miles, and official mileages are given. Later a table of kilometric distances for the section from Baiji to Tel Kotchek was issued, and in November 1940 the Railways Directorate normally used miles to Baiji and kilometres thence to Tel Kotchek. On this latter section the official distances in kilometres and miles do not agree, nor is there a constant difference on conversion from one set of figures to the other. In the detailed description given below, the official kilometric distances and the mileages derived from them are given in italics.

Names. There is also much inconsistency in the spelling of names, though possibly this has been remedied since the completion of the line. The various alternatives are given in the detailed account.

Route

The route taken by this line is best described in the four sections which were completed at different times between 1915 and 1940.

(i) *Baghdad to Samarra.* In this section, built by German engineers, the railway uses the banks of the old Dujail canal, west of the Abbasid course of the Tigris (p. 46). After skirting Kadhimain it leaves the neighbourhood of the river and from mile 18 is never within 5 miles of it until after passing Balad (m. 49). From Mushahida

(m. 25·6) it crosses steppe-desert, except between Sumaicha (m. 37·8) and Balad, where there is a fair amount of cultivation. The line runs almost level throughout and is of first-class standard.

(ii) *Samarra to Baiji.* The line in this section, almost completed at the Armistice in 1918, keeps along the riverain foot of the Jazira escarpment until at mile 93 it crosses the old Ishaqi canal and climbs to the plateau. Several branches of the Wadi Jibin are bridged, but the longest span is 40 feet. Beyond Tikrit station, which is in open country 2 miles west of the town, the line to Baiji is laid over the desert surface except at a few places where embankments are necessary. Built originally against time, mostly by Arab labour and Turkish prisoners of war, it was poorly ballasted at first, but is probably now first class.

(iii) *Baiji to Mosul.* Full details are not yet available of this section. The original line from Baiji to Sharqat was unsatisfactory, and a new alinement was taken when the line to Qaiyara was reconstructed after 1936. The line keeps close along the south-west foot of Jabal Mak-hul, crossing many culverts and small bridges, and climbs gradually from 450 feet above sea-level at Baiji to nearly 800 feet at the Tulul al Baq pass (m. 174) by which it crosses the north-western shoulder of Jabal Mak-hul. The descent on the north is over very broken ground, and there are many bridges, mostly small, before Jarnaf (Jirnaf) station (m. 196) is reached. The largest bridge is a steel construction, with a single span of 120 feet, over the Wadi Jirnaf. It was in the broken ground near the mouth of this wadi that the last Turkish army on the Tigris was forced to surrender at the end of October 1918 (p. 285). The Wadi Murr is crossed by a 40-foot single-span bridge before the line reaches Qaiyara station and oilfield, where it passes within sight of the river.[1] About 4 miles beyond the station another 120-foot single-span bridge takes the line over the deep Wadi Qasab. Thence to Mosul the ground is much broken. Bridges are mostly small, but 6 miles short of Mosul the line passes through the Albu Saif tunnel, 1,100 yards long.

(iv) *Mosul to Tel Kotchek.* Beyond Mosul the ground traversed is broken by streams and wadis until Tel al Hugna (m. 295·7) is passed; the line keeps close along the northern foot of the Jabal Atshan and

[1] Neither the alinement nor the stations between Tulul al Baq and Mosul are correctly shown on the official quarter-inch map (I-38 B, 2nd ed. 1942). In particular, Jarnaf and Qaiyara are shown 4 and 6 miles too far north respectively. According to official railway mileages, Jarnaf should be near the marching post of the same name; Qaiyara should be 3 miles south of the Wadi Qasab instead of 3 miles north of it. Jarnaf is spelt Jirnaf on the quarter-inch maps.

then crosses wadis from the direction of Tel Afar. From Tel al Hugna to the Syrian boundary the line follows the general direction of the Wadi al Murr, crossing numerous small tributaries, but there are no serious obstacles, the country traversed is open steppe-desert, and for the last 19 miles the alinement is almost dead straight.

DETAILED DESCRIPTION

Distances from Baghdad West *Miles*	*Km.*	*Stations and passing-loops*	*Remarks*
0·0	0·0	BAGHDAD WEST (*standard gauge*)	W. LS(5); DES.(6); SRs.(510 ft., 250 ft., 170 ft.); ER(2); GS. (3,840 sq. ft.); truck cranes (3-ton, 5-ton); Tbl. (75 ft.).
5·4	8·7	KADHIMAIN	For description of town, *see* p. 535.
6·5	10·5	..	Bridge, 80 ft. (8 × 10 ft.).
7·5 8·0 8·5 8·8	12·1 12·9 13·7 14·2	..	4 bridges, each 120 ft. (7 × 16·5 ft.).
12·6	20·3	TAJI HALT	..
12·8	20·6	..	Bridge, 65·5 ft. (5 × 13·1 ft.).
25·6	41·2	MUSHAHIDA (MUSHAIDI)	..
31·5	50·7	NADHIRIYAT HALT	..
37·8	60·8	SUMAIKA (SUMAICHA)	..
38·8	62·4	..	Bridge, 78·6 ft. (6 × 13·1 ft.).
49·1	79·0	BALAD	W. (T.11,000 gls.). LS.(2); DES.(2); SR.(70 ft.); ER.
57·1	91·9	RUMEILAT HALT	..
60·9	98·0	ISTABULAT HALT	..
69·2 69·8 70·8 71·2	111·4 112·3 113·9 114·6	..	4 bridges, 2 of 49 ft. (5 × 9·8 ft.), 2 of 39 ft. (4 × 9·8 ft.).
73·7	118·6	SAMARRA	W. (T.11,000 gls.). LS.(3); DES.(2); SR.; ER.; Tbl. (75 ft.). Branch siding, 2 miles, to Tigris bank. For description of Samarra town, on the opposite bank, *see* p. 550.
74·2	119·4	..	Bridge, 39 ft. (4 × 9·8 ft.).
88·4	142·3	MUKASHAFA (MUKAISHIFA) HALT	..
89·5	144·0	..	Bridge, 40 ft. (2 × 20 ft.).
92·6	149·0	TEL MUHAIJIR HALT	..
104·8	168·7	..	Bridge, 40 ft., single span, plate girders.
106·3	171·1	TIKRIT	LS.(2); DES.; SRs.(150 ft., 200 ft.); ER. For description of town, *see* p. 553.

Distances from Baghdad West *Miles*	*Km.*	*Stations and passing-loops*	*Remarks*
133·8	215·3	BAIJI	W. (T.10,000 gls.); LS.(3); DES.(3); SR.(246 ft.); ER.; GS.(1,440 sq. ft.); Tr. For I.P.C. sdg.: SR.(3); ER. I.P.C. Pumping station K2 and sdg. are south of the present station. Baiji river sdg. branches from main line about 4½ miles south of the present station and follows the line to Baiji old station, now disused.
155·7* *154·9*	250·6 *249·2**	AIN AD DUBBS (AIN DIBBIS)	LS.(2).
173·8 *172·8*	279·7 *278·1*	TULUL AL BAQ	LS.(2); DES. Speed restricted to 20 m.p.h. from here to Ash Shoura (Nov. 1940).
179·5 *179·9* *180·2*	*288·9* *289·6* *290·0*	..	3 bridges, each 40 ft., single span.
181·4	*292·0*	..	Bridge, 60 ft., single span.
194·5	*313·0*	..	Bridge over Wadi Jirnaf 120 ft., single span, through truss.
196·1 *195·0*	315·6 *313·8*	JARNAF (JIRNAF)	W. (T.10,000 gls.). LS.(2); DES.; SR.(100 ft.); ER.; GS.(1,440 sq. ft.).
201·5 *206·1*	*324·3* *331·7*	..	2 bridges, each 40 ft., single span.
211·2 *210·3*	339·9 *338·4*	QAIYARA (AL QAYARA)	W. (T.10,000 gls.). LS.(2); DES.; SR. (90 ft.); ER. B.O.D.C. headquarters.
215·0	346·0	..	Bridge over Wadi Qasab, 120 ft., single span, through truss.
218·0	350·8	..	Bridge, 40 ft., single span.
228·1 *226·8*	367·1 *364·9*	ASH SHOURA (SHORA)	LS.(2); DES. Speed restricted (Nov. 1940) to 15 m.p.h. from Ash Shoura to Mosul.
242·3 *240·9*	389·9 *387·7*	HAMMAM AL ALIL (HAMMAM ALI)	LS.(2); DES.; SR.(60 ft.); ER.; GS.(2,250 sq. ft.).
246·2	*396·2*	..	Bridge, 60 ft., single span.
c. 250·4	*c.* 403·0	..	Albu Saif tunnel, *c.* 1,100 yds.
250·8 *254·5*	*403·6* *409·6*	..	2 bridges, each 40 ft., single spans.

* From Baiji onwards the Railways Directorate uses kilometric distances. These disagree with the official distances in miles by about a mile, but the difference is not constant. In the distances given above, the figures in italics are the official kilometres and the mileage derived from them; those in upright type are the official miles, and the kilometres derived from them. Where only one set of figures is given the other is not known.

Distances from Baghdad West Miles	Km.	*Stations and passing-loops*	*Remarks*
256·5 *255·1*	412·8 *410·5*	MOSUL	W. (LS.(3); DES.(5); SR.(720 ft.); ER.(2); GS.(4,320 sq. ft.); ES.; Rps.; Tr.; petrol electric mobile crane (3½-ton). Customs shed (3,950 sq. ft.); garage (9,600 sq. ft.). For town description, *see* p. 517.
260·8	*419·7*	..	Bridge, 52·5 ft. (2 × 26·2 ft.).
272·2 *270·7*	438·1 *435·6*	AS SABUNIYA	LS.(2); DES.
285·0	*458·6*	..	Bridge, 82·0 ft. (5 × 16·4 ft.).
289·4 *287·7*	465·7 *463·0*	AL WA-ELIYA (KISIK KOPRU)	W. (T.10,000 gls.). LS.(2); DES.; SR.(100 ft.); ER.
291·9	*469·7*	..	Bridge, 65·6 ft. (2 × 32·8 ft.).
295·7 *294·0*	475·9 *473·1*	TEL AL HUGNA (TEL HUGENA)	LS.(2); DES.; SR.(350 ft.).
298·1	*479·8*	..	Bridge, 65·6 ft. (2 × 32·8 ft.).
310·8 *309·0*	500·2 *497·3*	TEL AL UWAINAT (TEL AWAINAT)	LS.(2); DES.; SR.(323 ft.); ER.; GS.(2,520 sq. ft.).
330·4 *328·5*	531·7 *528·6*	TEL KOTCHEK	Iraqi-Syrian boundary. W. (from well). LS.(3); DES.; SR.; ER.; Tr. A long spur to east of station enables trains to be reversed without entering Iraq. Locomotives have to be changed at Tel Kotchek as Iraqi engines burn oil and Syrian engines coal.

5. SHALCHIYA (BAGHDAD)–HINDIYA

Distance: 46·6 miles, 75·0 kilometres.

GENERAL DESCRIPTION

Few details of this line are available for publication. Of standard gauge, it was built in 1942 as a war-time measure, but the urgent need for it passed soon after its completion. The following is a list of passing-stations, with their mileages from Shalchiya: Daura (7·8), Khan Azad (17·3), Mahmudiya (22·9), Hamidiya (28·4), Iskandariya (34·0), Hormali (38·3), Musaiyib (42·7), Hindiya (46·6).

Shalchiya is about 2·1 miles north of Baghdad West (standard gauge). Interchange yards from metre-gauge to standard-gauge are at Musaiyib and Hindiya. About 32 miles of sidings of the two gauges were laid at Musaiyib and 41 miles at Hindiya, but some at both stations has been already removed as being no longer required.

There appears to be a slight divergence between this standard-gauge line and the main-line (metre-gauge) between Baghdad and Mahmudiya (Railway No. 1), but from there to Hindiya the two lines seem to run side by side. Details of bridges and station facilities are not available.

6. TANUMA (BASRA)–HOSSEINIEH JUNCTION

Distance: 26·7 miles, 42·9 kilometres.

Branch-lines

None.

Permanent Way and Stations

Standard gauge (4 ft. 8½ in.). Single track throughout. Rails, sleepers, ballast (no details).

Maximum axle-load, 18·5 tons; minimum radius of curves, 450 metres (1,476 feet); gradients, nil.

Maximum distances between passing-loops 22·7 km. (14·1 miles).

GENERAL DESCRIPTION

This short line meets another new line from Khorramshahr (Mohammerah) at Hosseinieh junction, which then runs on to Ahwaz, where it meets the Trans-Iranian railway from Bandar Shahpur. Hosseinieh junction is in Persian territory about 42 kilometres (26 miles) north of Khorramshahr and west of the Karun. Only 15 miles of the line from Tanuma is within Iraqi boundaries. It is dead flat and passes through desert and *sabkha* with low bush. Oil fuel is used for locomotives. The line was only opened in 1943 and full details are not yet available.

DETAILED DESCRIPTION

Distance from Tanuma Miles	Km.	*Stations and passing-loops*	*Remarks*
0·0	0·0	TANUMA	W. (T.17,000 gls. from reservoir, 80,000 gls., supplied by river). Oil reservoir (150 tons). PL. (2,500 ft.); ES.; marshalling yards and sdgs. Extension lines to Lighter basin (1 mile), and to interchange-point for Basra metre-gauge line over Hull bridge (p. 588).
14·1	22·7	AKELA	PL. (1,600 ft.); Sdgs.
26·7	42·9	HOSSEINIEH	W. (T.22,000 gls. from reservoir, 50,000 gls., cistern-waggon supply). PL. (1,900 ft.).

CIVIL AVIATION

IRAQ in normal times is on the air route between Western Europe and India, Australia, and the Far East. The pioneers of the route were British and the route was opened in sections. Early in 1919 the first reconnaissances were made between Baghdad and Damascus and between Baghdad and Lake Tiberias. Alternative routes were examined on the ground by car, and in 1920 the selected line was marked across the desert by a shallow trench cut by motor-plough; but it was not until January 1927 that the first regular air-service from Britain to Baghdad was opened. Early in 1928 the first mails by air were carried to India.

In 1939 there were six foreign companies operating on the air-routes to or through Iraq.

(1) *Imperial Airways* (*British*)

(*a*) Southampton to Singapore: Tiberias (Palestine)–Habbaniya–Basra–Bahrein (Persian Gulf)–Karachi (India). Three times weekly with sea-planes.

(*b*) Southampton to Calcutta: Lydda (Palestine)–Baghdad–Bahrein (Persian Gulf)–Karachi. Twice weekly by land-planes between Alexandria and Calcutta.

(2) *K.L.M.* (*Dutch*)

Amsterdam to Bandoeng (N.E.I.): Lydda (Palestine)–Baghdad–Basra (–Bushire)–Jask–Karachi. Three times weekly with land-planes.

(3) *Ala Littoria, S.A.* (*Italian*)

Rome to Basra: Haifa (Palestine)–Baghdad–Basra. Three times weekly with land-planes.

(4) *Misr Airwork S.A.E.* (*Egyptian*)

Cairo to Baghdad, via Lydda (Palestine). Twice weekly with land-planes.

(5) *Air France* (*French*)

Marseilles to Bangkok: Damascus (Syria)–Baghdad–Bushire–Jask–Karachi. Twice weekly with land-planes.

(6) *Deutsche Lufthansa* (*German*)

Berlin to Baghdad: a weekly service via Athens.

There were also regular air services between Baghdad and Mosul, and between Baghdad and Tehran, the latter by Iranian State Air Lines, flown to connect with the Deutsche Lufthansa service.

The war has brought many changes. The Dutch, Italian, French, and German services have ceased to operate and the Egyptian service ends in Syria; Imperial Airways has been reorganized as the British Overseas Airways Corporation (B.O.A.C.), but is not complete master of its schedules or services because of war conditions, though it operates the service to Tehran.

Post-war services must at present be speculative; and it need only be added that there are many landing-grounds throughout Iraq for administrative purposes and along the recognized air-routes for emergency landings. It is certain that Iraq must play an important part in any air-development in the future as in the past.

POSTS AND SIGNALS

Posts and Telegraphs

IRAQ is a member of the International Postal Union. The main mail routes out of the country are across the western desert through Rutba by motor and air for western Europe; through Mosul by mail train for Turkey; from Basra by rail, from Khanaqin by motor, and from Baghdad by air for Persia; and from the same places by sea and air for India and the Far East. Internal mails are carried by road and rail, and to a small extent by river and by pack transport.

Iraq is scantily served by internal posts and telegraphs, away from the main routes. There are only about 200 post and telegraph offices administered by the Director-General, besides some 60 railway telegraph offices available to the public. The latter work on the open circuit system, the normal lines being closed circuit. Except between Basra and Baghdad where the Wheatstone apparatus is used (60 words a minute), hand keys are normal practice. The Telegraph Department is organized in 3 divisions, with headquarters at Mosul, Baghdad, and Basra. The main telegraph lines are:

(*a*) Basra–Ur–Hilla–Baghdad.
(*b*) Basra–Amara–Kut–Baghdad.
(*c*) Baghdad–Khanaqin (for Tehran).
(*d*) Khanaqin–Kirkuk–Erbil–Mosul.
(*e*) Baghdad–Baiji–Mosul–Zakho (for Turkey).
(*f*) Baghdad–Ramadi–Haditha.

Telephones. There are between 100 and 150 State telephone exchanges with some 6,000 subscribers, of whom one-third are in Baghdad, where automatic exchanges are in use. Basra also has automatic exchanges, Hilla, Diwaniya, Mosul, and Kirkuk manual central battery exchanges; elsewhere magneto exchanges are used. Repeaters are installed at Basra, Diwaniya, Baghdad, and Kirkuk. The I.P.C. maintain a private telephone-line from Kirkuk to Haditha, and thence two lines to Haifa and Tripoli. This is not connected with the State system at Haditha.

Wireless stations transmit and receive public messages at Baghdad, Basra, and Rutba. At Baghdad there is also a short-wave service with Beirut, Cairo, and intermediate stations to deal with civil aviation traffic; Basra transmits port and shipping information; Rutba gives direction-bearings by day and night to aircraft crossing the desert. The Army, Police, the Khanaqin Oil Company, and the I.P.C. each have their independent wireless organizations.

Cables run from Fao to Bushire and thence to Jask, which is connected with Karachi and Muscat. Thus through Karachi, Iraq is linked with the main cable systems of the world.

APPENDIXES

A. STRATIGRAPHY

B. METEOROLOGICAL TABLES

C. TEN HISTORICAL SITES

D. CHRONOLOGICAL TABLE

E. WEIGHTS AND MEASURES

F. AUTHORSHIP, AUTHORITIES, AND MAPS

APPENDIX A

STRATIGRAPHY

THE stratigraphy of Iraq is fairly well known because the rocks are clearly exposed and can be easily studied in the north-eastern mountains and because the many borings made in the search for oil have clarified the position elsewhere. Recent explorations in northern Iraq have revealed that the systems of rocks exposed date back at least to Carboniferous and perhaps to Devonian times and have established that the lowest beds here have enough in common with the Palaeozoic outcrops to the south-east in Persia to indicate that rather similar conditions existed in both localities. From that it may perhaps be inferred that the still lower Cambrian beds which are seen in Persia probably underlie the visible strata here, although, as far as is known, they are not uncovered in even the deepest defiles of Kurdistan. To discover rocks deposited still earlier, an excursion must be made away to the west where, along the shores of the gulf of Akaba, there are pre-Cambrian schist, gneiss, and granite. This forms the archaean foundation of the Arabian platform (fig. 2).

The essential points seem to be that the Arabian platform, where deserts endured from the Cambrian until the Middle Cretaceous, sloped down in the east and north to a broad open trough. This provided a marine girdle around the desert which ran generally from south-east to north-west as far north as Mosul and then curved round from east to west in northern Iraq and eastern Syria. Eventually it bent still more and ran south-westwards in southern Syria and Palestine. Comparatively regular conditions obtained from end to end of this sea between Trias and Middle Cretaceous times, but during the Upper Cretaceous local disturbance in the east set up a ridge, expressed for a while as islands and shoals running north and south roughly along the line of the Tigris above Baghdad. To the west of this the floor was surprisingly flat; as a result the thickness of each deposit tends to be constant over a wide area. East of it, where the surface was sloping, the conditions changed rapidly across a strip between 60 and 100 miles wide. In the Late Cretaceous period this trough was particularly deep and relatively steep on its northern and eastern sides. It was nearly filled up by very thick deposits, which were gravelly at first but later became gritty and then sandy as the slope was reduced by the mounting deposits. The later contracting of the earth's crust was accompanied by a shallowing of the sea and its concentration which resulted in the deposition of a broad deposit of anhydrite, gypsum, and salt. This was an event with economic results, for it is this salty mantle which is gas-tight and able to imprison the concentrations of oil in central Iraq under fairly high pressure.

The following table gives a summary of the stratigraphy of Iraq.

Age	*Formation*	*Remarks*
Recent and Sub-Recent	Delta fans of gravel and sand where foothills join the plains; more than 40 feet locally.	Water-yielding beds supplying important towns.
	Alluvium of the Mesopotamian plain mostly silt; up to at least 130 feet.	Very fertile where irrigated.
	Sand-dunes mainly as a strip in the south to the west of the Shatt al Arab.	
	Sand and gravel forming the cover of wadis in the west.	
	River terraces, chiefly gravel, very variable and at varying heights; up to 200 feet thick in the mountains and foothills.	Evidence of late uplift.
	Screes in some of the north-eastern limestone mountains.	Very conspicuous in the Middle Cretaceous mountains.
Pliocene and Miopliocene	Bakhtiari conglomerates consisting largely of limestone cobbles with interbedded pebbly sandstones and lenticular bodies of sandy silt. Partly made up of fossil delta fans, partly outwash and adjoining piedmont deposits. Thickness variable 0–3,500 feet, but apt to be exaggerated owing to depositional dips. Varies from well cemented to poorly consolidated. Confined to the north and east. Rare mammalian remains.	Water-yielding beds of importance. Evidence of large uplift and mountain building.
	Pebbly sandstones and gravels merge into recent sands and gravels west of the Euphrates and patches of chalk outwash occur in certain structural basins.	
	Terra-cotta coloured clays and silts with freshwater shells in local sunken basins near the Arabian frontier. Freshwater limestones are associated, e.g. Zahra Limestone.	Recalling the deposits in the down-faulted depressions of Turkey.
Upper and Middle Miocene	Upper Fars red-bedded, false-bedded sandstones, silts and marls with rare limy bands. Ripple marked. Up to 2,000 feet on north-east. Seldom more than 100 feet thick on the west of the Euphrates. Rare *chara*. Marls often veined with fibrous gypsum.	Shallow brackish and freshwater conditions accompanying a general emergence.
Middle and Lower Miocene	Red pebbly sandstone in the north-east.	
	Lower Fars beds forming a complex sequence of red, green, grey, and yellow shale, marl, and silt interbedded with several thin shelly limestones and a few anhydrites in the lower part, passing up into a series with little limestone but more anhydrite and some beds of rock salt and salty marl. *Ostrea latimarginata* and *Clausinella* abundant at some points.	Change of climate accompanying change of conditions. Folded rocks emerging on the north-east. Sea in the south-western depression concentrated progressively.
	Up to 6,500 feet thick in the north-east, though usually not more than 2,500 feet on this flank. The whole series not much more than 100 feet thick to the west and south of the Euphrates.	Just overlapping the western platform.

Age	*Formation*	*Remarks*
Lower Miocene and Oligocene	Red grit, sandstone, and silt in north-east passing laterally into thick and thin-bedded foraminiferal limestones, the Kalhur or Ana or Euphrates limestone.	Steep coast lay to the north-east with a trough in front. It rose south-west to a narrow ridge at Sadid.
	Restricted to troughs and absent over certain ridges. Thickness varies from 0 to 550 feet. Anhydrite locally in thin bands near the base, and some conglomerates fringing ancient banks. *Miliola*, *Lepidocyclina*, and other foraminifera and calcareous algae.	Westwards there was a flooded shelf like the Bahamas bank at the present day.
Eocene	Yellow and red chert grit in the north-east, passing into dark grey silty shales with thin sandstone ribs to the south-west. Local conglomerates of chert pebbles occur. The whole series resembles European flysch. Up to 3,000 feet thick. Nummulitic massive and banded limestones occur interbedded with marls and cover some of the flysch and replace part of it. They give way to *Globigerina* marls near the centre of the basin. About 1,000 feet thick. West of the basin chalky marls with some beds of flint occur. About 350 feet thick. *Nummulites*, *Globigerina*, and *Operculina libica* in the west. Laterite at the base in the western desert.	From a steep shore on the north-east a trough sank to 3,000 feet near the course of the Tigris but was bounded by a ridge at Sadid. The nearly flat sea floor to the west retained a depth of about 300 feet of water on it for about 200 miles, though it gradually shallowed farther west.
Upper Cretaceous	Grey conglomerate, red and grey sandstones, grey shales and reef limestones with rudists and *Loftusia* rest on light grey and green marls in the north-east; in all more than 5,000 feet thick, thinning rapidly in both directions from this maximum. Thin sandstones, shales, and thin limestone ribs occur to the south-west and pass to *Globigerina* marls and argillaceous limestones in the foothills. Thickness is rather regular at about 800 feet. Shelly sandy limestone and sandstones with *Loftusia* occur interbedded with sandstones and shales west of the Euphrates making a thickness of about 100 feet. Some chalky limestone developed in the western desert.	The coarse sediments showing rapid variation in thickness reflect mountain building to the north-east and north. The shallow marine sandstones with *Loftusia* and rudists are widespread but thin over the western platform.
Middle Cretaceous	Two types of limestone deposits occur in the north-east; one is massive and dolomitic with *Orbitolina* and occasional reefs of oysters, rudists, and Gasteropods; the other is thin-bedded and argillaceous with some shaly partings. It contains *Ammonites* and *Globigerina*. These two facies change suddenly from north-west to south-east.	Open sea conditions over a wide area with deposition modified by a large distant river's discharge.

Age	*Formation*	*Remarks*
	Sandy limestone interbedded with sandstone and conglomerate and containing banks of *Exogyra flabellata* occur on south-west of the basin.	Shallow water to the south-west and sand available from the sea floor.
	Dolomitic limestone with *Nerinea* is found in the western desert and is about 100 feet thick.	
Lower Cretaceous	Thin-bedded limestones with *Globigerina* and *Ammonites* in the north-east; about 300 feet thick.	Shallow sea temporarily stagnant.
	Grey limestone with sandstone and ferruginous oolite in the very north about 1,100 feet thick.	Land with humid climate both north-east and south-west where soil was leached to form laterite.
	Sandstone and quartzite in the western desert with laterite on top.	
Jurassic	Bituminous shale and shaly limestone with *Posidonomya* and *Ammonites* lie on top of massive foetid dolomite associated locally with asphalt. About 1,500 feet thick except in the extreme north where it thickens to 5,000 feet at Ora.	Stagnant sea freshened at intervals by ventilating currents after deep-sea conditions obtained earlier.
	In western Iraq it is made up of sandstone and quartzite; part of the Nubian Sandstone.	Desert in the west.
	Red thin-bedded chert and interbedded oolitic limestone in the thrust sheets in the north-east about 5,000 feet thick.	Volcanoes in the north-east.
Trias	Bedded limestone with lenses of black chert and thin bedded argillaceous and shelly limestones with shaly partings (with rare echinoid spines and plates), about 2,000 feet thick in the north-east and in upper Mesopotamia.	Normal marine conditions.
	Nubian Sandstone in the west.	Desert in the west.
Permian and Carboniferous	Red, green, and yellow shales, siltstones, and thin limestones with rare *Lamellibranchs* in the Sirwan. Light grey thin-bedded dolomites and dolomitic limestones with sparse *Fusulina* above and dark flaggy and massive limestones and subordinate shale below, with corals and gasteropods. About 2,400 feet thick.	Shallow water with possibly a short emergence. Encroaching sea brings sand with it and then clearing to normal and reef condition.
	Nubian Sandstone in the west.	Desert in the west.
Devonian	White quartzitic sandstone and dark shales with plant remains, associated with red sandstone with thin limestone bands. About 200 feet exposed in Ghara Dagh near Amadia.	Terrestrial or locally deltaic conditions.
Basement Pre-Cambrian	Exposed only in Transjordania and Saudi Arabia, made up of schist and gneiss much folded and cut by volcanic intrusions.	

APPENDIX B. METEORO-

TABLE I. *Percentage Frequency*

SHUAIBA (*near Basra*). 10 years' observations

	Jan.		*Feb.*		*March*		*April*		*May*		*June*	
Time	0500	1600	0500	1600	0500	1600	0500	1600	0500	1600	0500	1600
N.	5	13	7	17	5	25	5	25	7	**43**	7	38
NE.	6	5	3	3	6	5	2	4	4	5	1	2
E.	9	8	9	5	8	6	7	9	2	7	0	1
SE.	10	14	13	18	12	15	11	14	6	9	0	1
S.	3	3	6	5	7	4	9	3	6	1	2	0
SW.	5	0	7	1	8	0	11	1	11	1	10	0
W.	**31**	10	**25**	6	**20**	4	**21**	5	20	3	28	3
NW.	19	**42**	13	**37**	13	**34**	12	**32**	17	29	**36**	**54**
Calm	12	5	17	8	21	7	22	4	**27**	2	16	1

DIWANIYA (*Euphrates*). 10–11 years' observations

Time	0600	1300	0600	1300	0600	1300	0600	1300	0600	1300	0600	1300
N.	8	9	6	10	14	13	14	11	19	10	18	11
NE.	1	2	2	3	4	3	6	5	8	4	2	1
E.	7	7	12	9	8	8	6	6	5	4	<1	0
SE.	14	12	14	11	12	10	9	6	5	4	<1	<1
S.	2	3	5	7	6	4	8	6	5	4	2	2
SW.	2	2	4	3	3	2	4	4	2	4	3	2
W.	21	17	14	19	13	19	17	22	16	25	17	26
NW.	**25**	**35**	**25**	**32**	**30**	**33**	**25**	**34**	**29**	**39**	**55**	**58**
Calm	20	13	18	6	10	8	11	6	11	6	3	<1

HINAIDI (*near Baghdad*). 10 years' observations

Time	0600	1300	0600	1300	0600	1300	0600	1300	0600	1300	0600	1300
N.	10	24	12	19	15	17	17	19	21	16	19	15
NE.	5	6	4	3	4	4	6	3	10	2	5	1
E.	3	5	8	5	5	4	4	3	7	3	<1	0
SE.	12	11	16	16	17	14	14	9	5	8	<1	0
S.	4	5	8	8	6	6	9	6	4	4	<1	<1
SW.	6	5	5	5	2	4	4	7	3	7	1	4
W.	16	7	13	10	11	11	15	17	18	26	19	25
NW.	**28**	**29**	**18**	**26**	**29**	**31**	**23**	**29**	**25**	**27**	**52**	**51**
Calm	16	8	16	8	11	9	8	7	7	7	4	4

RUTBA (*Western Desert*). 9–10 years' observations

Time	0600	1300	0600	1300	0600	1300	0600	1300	0600	1300	0600	1300
N.	<1	4	1	2	4	6	3	3	8	6	10	3
NE.	3	7	2	6	2	7	5	2	11	6	5	1
E.	7	13	4	4	5	6	6	4	6	6	1	1
SE.	4	12	9	14	7	9	9	12	5	5	2	<1
S.	7	5	9	10	6	4	7	6	5	4	<1	2
SW.	**34**	10	**33**	17	**24**	15	17	15	8	19	4	18
W.	16	**20**	22	**25**	23	**27**	**26**	**35**	**24**	**31**	32	**49**
NW.	6	17	2	12	9	16	15	15	20	16	**37**	21
Calm	23	12	18	10	20	10	12	8	13	7	9	5

MOSUL. 6 years' observations†

	Jan.	Feb.	March	April	May	June
N.	5	2	3	4	7	11
NE.	3	5	6	5	4	5
E.	5	5	7	3	3	2
SE.	2	7	5	4	6	2
S.	2	4	1	2	3	2
SW.	1	3	2	2	3	5
W.	4	5	4	5	4	11
NW.	6	4	8	8	11	17
Calm	**72**	**65**	**64**	**65**	**59**	**45**

* Throughout these tables, figures in heavy type are maxima, those in italics minima.

LOGICAL TABLES*

of Wind Directions

July		*Aug.*		*Sept.*		*Oct.*		*Nov.*		*Dec.*		*Year*		
0500	1600	0500	1600	0500	1600	0500	1600	0500	1600	0500	1600	0500	1600	*Time*
3	35	4	36	2	34	6	29	4	18	5	14	5	27	N.
0	1	0	1	2	4	4	5	4	5	4	3	3	4	NE.
0	0	3	3	1	4	3	3	8	8	6	7	5	5	E.
1	0	3	4	4	5	5	9	9	17	8	14	7	10	SE.
1	0	4	1	6	1	8	1	6	4	5	3	5	2	S.
8	1	13	1	14	0	15	1	8	1	7	2	10	1	SW.
44	4	**42**	3	**39**	3	**30**	4	**23**	5	**30**	12	**29**	5	W.
34	**58**	24	**50**	22	**46**	20	**44**	17	**36**	21	**41**	21	**42**	NW.
9	1	7	1	10	3	9	4	21	6	14	4	15	4	Calm
0600	1300	0600	1300	0600	1300	0600	1300	0600	1300	0600	1300	0600	1300	*Time*
14	10	21	14	20	15	17	15	12	12	9	11	14	12	N.
2	<1	1	2	3	2	5	3	4	4	4	3	3	3	NE.
<1	1	1	<1	1	2	4	6	7	9	10	7	5	5	E.
<1	<1	<1	<1	2	2	5	5	9	10	9	8	7	6	SE.
<1	0	1	<1	2	2	4	2	6	4	2	5	4	3	S.
<1	1	1	1	2	<1	3	3	5	2	2	1	3	2	SW.
17	24	15	21	13	16	9	16	11	14	16	15	15	19	W.
63	**61**	**55**	**59**	**47**	**52**	**36**	**36**	**28**	**31**	**27**	**31**	**37**	**42**	NW.
4	3	5	3	10	9	17	14	18	14	21	19	12	8	Calm
0600	1300	0600	1300	0600	1300	0600	1300	0600	1300	0600	1300	0600	1300	*Time*
17	10	20	15	19	19	18	16	13	14	8	15	16	17	N.
1	0	3	3	6	3	9	5	3	4	4	4	5	3	NE.
0	<1	<1	0	1	<1	3	5	6	7	6	6	4	3	E.
0	0	<1	<1	2	2	7	5	15	12	12	9	8	7	SE.
<1	<1	2	<1	3	<1	3	4	6	6	4	4	4	4	S.
1	4	<1	2	2	4	3	4	4	3	3	3	3	4	SW.
17	26	14	19	17	15	14	10	14	9	23	10	16	15	W.
62	**56**	**59**	**56**	**44**	**50**	**33**	**40**	**26**	**30**	**24**	**32**	**35**	**38**	NW.
2	4	2	5	6	7	10	11	13	15	16	17	9	9	Calm
0600	1300	0600	1300	0600	1300	0600	1300	0600	1300	0600	1300	0600	1300	*Time*
6	4	11	7	8	5	4	6	1	8	3	6	5	5	N.
2	1	7	5	4	4	7	9	4	9	2	9	5	5	NE.
0	<1	1	<1	3	5	6	14	5	11	4	12	4	6	E.
0	1	<1	4	3	7	6	10	4	12	4	15	4	8	SE.
0	2	<1	3	3	5	8	6	8	6	10	7	5	5	S.
2	13	4	16	15	18	**26**	12	**37**	12	**36**	9	20	15	SW.
51	**55**	**37**	**39**	**28**	**32**	14	**21**	16	**18**	14	**16**	**25**	**31**	W.
39	22	32	17	17	14	7	12	5	13	5	11	16	16	NW.
<1	2	8	9	19	10	22	10	20	11	22	15	16	9	Calm
11		11		7		6		5		3		6		N.
4		2		3		2		4		2		4		NE.
2		1		2		3		6		8		4		E.
2		2		1		3		3		8		4		SE.
3		2		1		2		1		4		2		S.
4		3		3		2		1		1		3		SW.
11		11		5		2		3		3		6		W.
17		19		10		10		8		3		10		NW.
46		**49**		**68**		**70**		**69**		**66**		**61**		Calm

† Time of observation not known; possibly the mean of observations at 0600 hrs. and 1300 hrs.

TABLE II. *Temperature*
(Degrees Fahrenheit)

	Jan.	*Feb.*	*Mar.*	*Apr.*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Year*
SHUAIBA (Basra)													
11–16 years' obsns. between 1922 and 1939													
D. Mean	*52*	57	65	75	86	91	96	**97**	90	80	68	55	76
M. D. Max.	*62*	67	79	89	101	107	111	**112**	107	96	80	66	90
M. D. Min.	*42*	46	53	61	72	77	**81**	80	72	64	55	45	62
Absolute Max.	*81*	85	102	111	115	121	120	**125**	118	111	100	88	—
Absolute Min.	21	23	29	44	59	64	**70**	67	58	47	32	*19*	—
Mean Monthly Max.	*72*	79	91	103	111	115	117	118	114	107	92	78	**119***
Mean Monthly Min.	30	33	41	50	64	70	**74**	73	65	55	41	32	*27*†
DIWANIYA (Euphrates)													
10–12 years' obsns. 1928–1939													
D. Mean	*49*	54	61	72	83	89	**93**	**93**	87	77	64	53	73
M. D. Max.	*61*	67	77	88	99	106	111	**112**	106	95	78	64	89
M. D. Min.	*38*	41	47	56	67	71	**75**	74	68	59	50	41	57
Absolute Max.	*74*	85	98	108	115	118	121	**125**	118	110	99	81	—
Absolute Min.	20	22	29	37	49	57	**65**	62	54	41	30	*18*	—
HINAIDI (Baghdad)													
13–16 years' obsns. between 1922 and 1937													
D. Mean	*48*	52	61	71	82	90	**94**	**94**	87	76	63	52	73
M. D. Max.	*58*	63	75	85	97	105	**110**	**110**	105	93	76	63	87
M. D. Min.	*38*	42	48	57	67	74	**78**	77	70	61	51	41	59
Absolute Max.	*71*	82	97	110	112	117	**121**	120	117	106	92	80	—
Absolute Min.	*19*	22	26	41	54	61	**68**	65	57	44	28	24	—
RUTBA (Western Desert)													
7–10 years' obsns. between 1928 and 1937													
D. Mean	*44*	49	56	65	74	81	86	**87**	80	71	58	47	66
M. D. Max.	*54*	60	71	80	89	97	102	**103**	97	86	71	58	81
M. D. Min.	*34*	37	42	50	59	65	**70**	**70**	63	55	46	36	52
Absolute Max.	*74*	84	95	100	106	108	111	**114**	113	100	95	75	—
Absolute Min.	*10*	17	25	35	44	54	58	**60**	52	39	23	16	—
MOSUL													
13–14 years' obsns. 1922–1936													
D. Mean	*44*	48	55	63	75	84	**91**	**91**	82	71	59	47	67
M. D. Max.	*51*	53	64	75	93	95	**108**	107	97	87	70	57	80
M. D. Min.	*35*	36	46	47	59	67	**72**	71	64	53	46	39	53
Absolute Max.	*66*	76	87	104	107	114	**120**	118	117	102	95	75	—
Absolute Min.	*12*	21	25	33	45	54	**59**	58	49	37	26	19	—

* Mean of highest each year. † Mean of lowest each year.

TABLE III. *Relative Humidity*
(Percentages)

	Jan.	*Feb.*	*Mar.*	*Apr.*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Year*
SHUAIBA (Basra) 10 years' obsns. between 1922 and 1939. Mean of obsns. at 0500 hrs. and 1600 hrs.	73	67	54	47	38	32	24	26	29	36	58	70	46
DIWANIYA (Euphrates) 11–12 years' obsns. between 1928 and 1939. Mean of obsns. at 0600 hrs. and 1300 hrs.	65	58	42	33	25	19	18	19	23	28	47	64	37
HINAIDI (Baghdad) 10–14 years' obsns. between 1922 and 1937. Mean of obsns. at 0600 hrs. and 1300 hrs.	68	62	43	38	28	21	21	20	22	30	52	65	39
RUTBA (Western Desert) 9–10 years' obsns. between 1928 and 1937. Mean of obsns. at 0600 hrs. and 1300 hrs.	64	54	35	31	29	23	22	23	27	31	48	61	37
MOSUL 13–14 years' obsns. between 1922 and 1936. Mean of obsns. at 0800 hrs. and 1300 hrs.	79	74	72	56	42	34	30	29	34	47	71	82	54

The figures of different stations are not comparable, because of the different hours of observation.

TABLE IV. *Temperature and Relative Humidity*
Comparisons between Shuaiba and Basra Airport

	Jan.	*Feb.*	*Mar.*	*Apr.*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Year*
1. *At 0900 hours*													
SHUAIBA (1923–1937)													
Temp. F.	48°	55°	65°	78°	90°	95°	99°	99°	92°	81°	66°	52°	77°
Rel. Hum. %	84	79	60	45	33	27	23	24	29	38	65	81	49
BASRA AIRPORT (1938)													
Temp. F.	55°	56°	61°	77°	84°	89°	96°	95°	92°	76°	68°	57°	76°
Rel. Hum. %	89	85	74	56	51	42	45	47	56	50	67	89	63
BASRA AIRPORT (1939)													
Temp. F.	54°	55°	65°	74°	88°	90°	92°	91°	87°	81°	67°	56°	75°
Rel. Hum. %	89	86	71	63	53	49	47	45	47	46	62	74	61
2. *At 1600 hours*													
SHUAIBA (1923–1937)													
Temp. F.	60°	66°	75°	86°	97°	104°	109°	111°	105°	94°	78°	64°	87°
Rel. Hum. %	55	55	41	33	25	22	18	18	20	26	44	59	35
BASRA AIRPORT (1938)													
Temp. F.	61°	63°	67°	85°	91°	98°	105°	106°	101°	89°	77°	63°	84°
Rel. Hum. %	78	66	62	43	41	35	30	34	44	33	48	73	49
BASRA AIRPORT (1939)													
Temp. F.	62°	63°	73°	81°	94°	98°	102°	103°	99°	92°	76°	67°	84°
Rel. Hum. %	72	71	52	48	43	40	35	30	30	30	45	53	46

TABLE V. *Precipitation*
Rainfall in Inches and Number of Rain-days

	Jan.	*Feb.*	*Mar.*	*Apr.*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Year*	*Max. in 24hrs.*
SHUAIBA (13–14 years' observations)														
Inches	**1·3**	1·2	0·4	0·5	0·1	0·0	0·0	0·0	0·0	0·1	1·1	1·0	5·7	2·2
Days	**6·5**	0·5	2·9	2·4	0·5	0·0	0·0	0·0	0·0	0·8	4·0	3·7	21·3	—
DIWANIYA (10–12 years' observations)														
Inches	**1·6**	0·9	0·2	0·5	0·7	0·0	0·0	0·0	0·0	0·0	0·6	0·9	4·9	4·5*
Days	..	..	..	..	Not known			..	..	..	..	..	..	..
HINAIDI (13–14 years' observations)														
Inches	**1·2**	1·1	0·3	0·4	0·4	0·0	0·0	0·0	0·0	0·1	1·0	1·0	5·5	1·5
Days	**4·9**	5·5	2·6	2·7	1·8	0·2	0·0	0·0	0·1	1·5	4·5	4·5	28·3	—
RUTBA (9–10 years' observations)														
Inches	**0·9**	0·7	0·1	0·4	0·2	0·0	0·0	0·0	0·0	0·1	0·7	0·7	3·8	1·8
Days	**4·3**	3·0	1·0	3·0	1·7	0·0	0·0	0·0	0·3	1·0	3·7	3·5	20·5	—
MOSUL (13–14 years' observations)														
Inches	2·1	**3·0**	1·6	1·8	0·5	0·0	0·0	0·0	0·0	0·2	1·8	2·0	13·0	3·4†
Days	8·8	**14·3**	6·8	7·4	3·1	0·7	0·2	0·0	0·1	1·6	7·8	9·1	59·9	—

In the rainfall, the figure 0·0 indicates a mean rainfall of less than 0·05; in the rain-days the figure 0·0 indicates a total of less than 5 days in the month over a period of 100 years, i.e. less than 1 rain-day in 20 years.

* Abnormal thunderstorm in May.

† Abnormal downpour in November.

TABLE VI. *Precipitation*
Mean Annual Rainfall

Station	Height in feet (approx.)	Inches of rainfall	Period	Authority
Lower Delta				
Fao	7	6·6	1936–9	Port
Maqil	7	5·2	1928–39	Railways
Shuaiba	60	5·7	1923–39	R.A.F.
Ghubaishiya	13	3·2	1928–39	Railways
Ur	13	2·9	"	"
Amara	30	8·3	1936–9	Posts and Telegraphs
Upper Delta				
Samawa	20	3·0	1928–39	Railways
Diwaniya	70	4·9	"	R.A.F.
Hilla	90	3·9	"	Railways
Karbala	95	2·4	"	"
Hindiya	112	3·8	"	Irrigation
Habbaniya	144	5·8	1937–9	R.A.F.
Qala Sikar	43	4·2	1936–9	Posts and Telegraphs
Kut al Imara	62	5·9	"	"
Hinaidi (Baghdad)	110	5·5	1928–39	R.A.F.
Samarra	213	3·8	"	Railways
Mandali	350	14·4	1936–9	Posts and Telegraphs
Jazira and Euphrates above Ramadi				
Baiji	469	8·5	1934–9	I.P.C.
Sinjar	1,950	19·5	1936–9	Posts and Telegraphs
Bir Ugla	1,280	17·2	1936–8	Police
Haditha	450	5·6	1934–9	I.P.C.
Ana	500	5·4	1936–9	Posts and Telegraphs
Assyrian Plains and Foothills				
Table Mt. (Mansur)	220	6·7	1928–39	Railways
Qaraghan (Jaloula)	390	7·3	"	"
Khanaqin	660	12·0	1931–9	"
Tuz Khurmatli	720	8·3	1928–39	"
Iftikhar	670	8·6	"	"
Kirkuk	1,000	14·8	"	I.P.C. and Railways
Dibis	780	17·2	1936–9	I.P.C.
Erbil	1,360	18·2	1936–8	Posts and Telegraphs
Mosul	730	13·0	1923–39	R.A.F.
Kurdish Mountains				
Halabja	2,300	43·3	1936–9	Posts and Telegraphs
Sulaimaniya	2,750	32·9	"	"
Diana (Ruwandiz)	2,700	41·4	1936–7, 1939	"
Aqra	2,500	36·9	1936–9	"
Amadia	3,500	43·2	"	"
Zakho	1,450	40·4	"	"
Western and Southern Deserts				
T1	1,040	6·6	1934–9	I.P.C.
H1	1,340	5·9	"	"
H2	1,950	5·7	"	"
H3	2,550	4·8	"	"
Rutba	2,020	3·8	1929–39	R.A.F.
Nukhaib	1,000	3·7	1936–9	Police
Shabicha	950	4·3	"	"
Salman	660	4·1	"	"
Bussaiya	470	4·4	"	"

TABLE VII. *Snow, Thunder, and Hail*
Number of Days with these Phenomena
(Means of an unstated number of years)*

	Jan.	*Feb.*	*Mar.*	*Apr.*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Year*
SHUAIBA													
Snow	0·1	0	0	0	0	0	0	0	0	0	0	0	0·1
Thunder	0·9	1·0	2·7	2·1	1·5	0·1	0	0	0	0·4	1·8	1·4	11·9
Hail	0·1	0	0	0·1	0	0	0	0	0	0	0	0·1	0·3
BAGHDAD													
Snow	0.1	0	0	0	0	0	0	0	0	0	0	0·1	0·2
Thunder	0·8	1·5	1·1	2·0	2·5	0·5	0	0	0·2	1·0	1·6	1·2	12·4
Hail	0·2	0·1	0·2	0·2	0·4	0	0	0	0	0·1	0	0·5	1·7
RUTBA													
Snow	0·3	1·0	0	0	0	0	0	0	0	0	0	0·3	1·6
Thunder	0·3	0·3	1·0	2·3	1·3	0	0	0	0	0·7	1·0	0·5	7·4
Hail	0	0	0	0	0·3	0	0	0	0	0	0	0	0·3
MOSUL													
Snow	0·5	0·3	0	0	0	0	0	0	0	0	0	0·4	1·2
Thunder	0·3	1·8	1·6	4·1	3·9	1·6	0·2	0·1	0·2	0·3	1·6	0·6	16·3
Hail	0	0·5	0·4	0·6	0·4	0	0	0	0	0	0·1	0·3	2·3

* Figures from *Statistical Abstract 1940*, published by the Ministry of Economics in Iraq. It is not known whether these stations are identical with those already quoted, nor whether the Baghdad observations were taken at Hinaidi.

TABLE VIII. *Dust-storms, Fog, and Low Visibility*
Number of Days with these Phenomena

	Jan.	*Feb.*	*Mar.*	*Apr.*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Year*
SHUAIBA													
Dust-storms	0·6	1·6	3·6	2·8	2·4	2·2	8·2	1·6	2·8	1·2	0·6	0·2	27·8
Fog	1·6	0·4	0·1	0	0	0	0	0	0·5	0	1·0	2·8	6·4
Low visibility*	1·0	1·0	0·8	0·4	0·9	1·0	2·0	0·4	0·8	0·8	1·0	1·0	11·1
BAGHDAD													
Dust-storms	1·2	3·0	3·2	3·6	4·0	2·0	5·0	1·6	1·0	0·8	1·2	1·2	27·8
Fog	2·9	0·6	0·1	0·3	0·2	0	0	0	0	0	0·9	3·5	8·5
RUTBA													
Dust-storms	0·3	0·5	0·5	0·3	0·7	0·7	0·3	0·3	0	0	0·5	0·3	4·4
Fog	2·0	0·3	0·3	0	0	0	0	0	0	0	0·3	2·0	4·9
MOSUL													
Dust-storms	0	0·4	0·2	0·4	2·2	0	1·0	0	1·2	0·8	0·2	0	6·4
Fog	3·6	1·8	1·6	0·6	0	0	0	0	0	0	1·5	5·3	14·4

* No. of days on which visibility falls below 2 nautical miles. The figures are from MS. data in the M.O. London and cover a period of 9–10 years. The other figures in this table are from the *Statistical Abstract 1940* of the Ministry of Economics in Iraq, and the period covered is not known. This presumably accounts for the higher mean percentage of days with fog than days with low visibility, which presumably includes fog, mist, and haze.

TABLE IX. *Sunshine and Cloud*

	Jan.	*Feb.*	*Mar.*	*Apr.*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Year*
1. *Sunshine*													
HINAIDI													
Percentage 1940	57	66	77	69	72	87	90	89	89	73	75	65	76·7*
MOSUL													
Percentage 1940	40	45	67	59	66	86	89	88	85	70	65	44	68·3†
Mean daily hours (6 years' obsns.)	5·9	6·2	6·6	9·9	10·3	12·3	13·0	12·3	10·9	8·8	6·9	4·6	8·9
2. *Cloud-cover*													
0 Clear													
10 Overcast													
SHUAIBA (10 years' observations) ½(0500hrs. + 1600hrs.)	4·2	3·4	3·2	3·4	3·1	0·5	0·9	0·9	0·5	1·5	3·3	3·7	2·4
DIWANIYA (12 years' observations) ½(0600 hrs. + 1300 hrs.)	4·1	3·7	3·7	3·5	3·2	0·5	0·5	0·5	0·6	2·3	3·7	4·5	2·6
HINAIDI (*c.* 11 years observations) ½(0600 hrs. + 1300 hrs.)	4·4	4·4	4·0	3·8	3·3	0·6	0·5	0·3	0·5	2·3	4·1	4·5	2·7
RUTBA (10 years' observations) ½(0600 hrs. + 1300 hrs.)	3·9	3·9	3·0	3·2	3·1	0·5	0·2	0·6	0·7	2·2	3·9	4·1	2·4
MOSUL (14 years' observations) ½(0800 hrs. + 1300 hrs.)	4·2	5·9	6·2	4·3	4·0	2·2	0·5	0·3	1·0	3·9	4·7	6·7	3·7

* 3,418·5 hrs. sunshine out of a possible 4,455·6 hrs.
† 3,065·7 hrs. sunshine out of a possible 4,468·7 hrs.

APPENDIX C

TEN HISTORICAL SITES

THE following sites have been selected for brief description in order to give a summary conspectus of the range of antiquity visible in the excavations and ruins of Iraq. Ur represents the Sumerian and Akkadian epochs. Ashur, Nineveh, and Khorsabad show diverse aspects of the Assyrian Empire. The ruins of Babylon reveal the final achievements of architecture in the Neo-Babylonian period. Seleucia, Hatra, and Ctesiphon belong to a new age, the mixed Hellenistic and Oriental civilization of the Parthian and Sassanid empires. Finally, at Ukhaidhir and Samarra the Moslem architecture of the early centuries of Islam is visible.

UR (fig. 92; photos. 94, 113)

Ur, originally a settlement and port at the mouth of one of the distributaries of the Euphrates delta, and now 120 miles from the head of the Khor Zubair, is one of the few ruined sites of Iraq where the general plan of the town can be distinguished without undue difficulty by the casual visitor. It has a biblical connexion with Abraham and was inhabited continuously from the middle of the fourth millennium to the beginning of the fourth century B.C., when it was finally abandoned. The towns of several epochs have been excavated by Sir Leonard Woolley, lying one above another as they were rebuilt generation by generation. Between two levels of prehistoric periods Woolley discovered a deep layer of pure sand, which he acclaimed as evidence of a great flood and connected with the Deluge of the Bible and of Sumerian mythology. But there is evidence that other floods occurred at different periods at other Sumerian sites such as Kish and Erech.

Buildings are now visible in different parts of the excavated area dating from the following periods: Early Dynastic *c.* 3000–2500 B.C. and Third Dynasty *c.* 2200 B.C. (p. 209), Kassite *c.* 1400 B.C. (p. 211), and Neo-Babylonian *c.* 550 B.C. (p. 219). The town was oval in shape and enclosed by a wall. This mud-brick rampart rises 20 feet above the plain, sloping back at an angle of 40 degrees and 72 feet thick at the base. Inside it is vertical and acts as a retaining wall to the platform on which the excavated levels of the town are built. Within the wall three complexes of buildings have been excavated: the temples and ziggurat enclosed by the precinct wall of Nebuchadnezzar II, the inhabited quarter or town proper to the south-east, and the palace and temple of Nabonidus to the north-east. Traces of two harbours are visible at the north end and on the west side.

The ziggurat (p. 223) was rebuilt by Nabonidus *c.* 550 B.C., but contains in its core the ziggurat built by Ur-Nammu (2300 B.C.). It had three monumental stairways of 100 steps to the first platform, one of which has

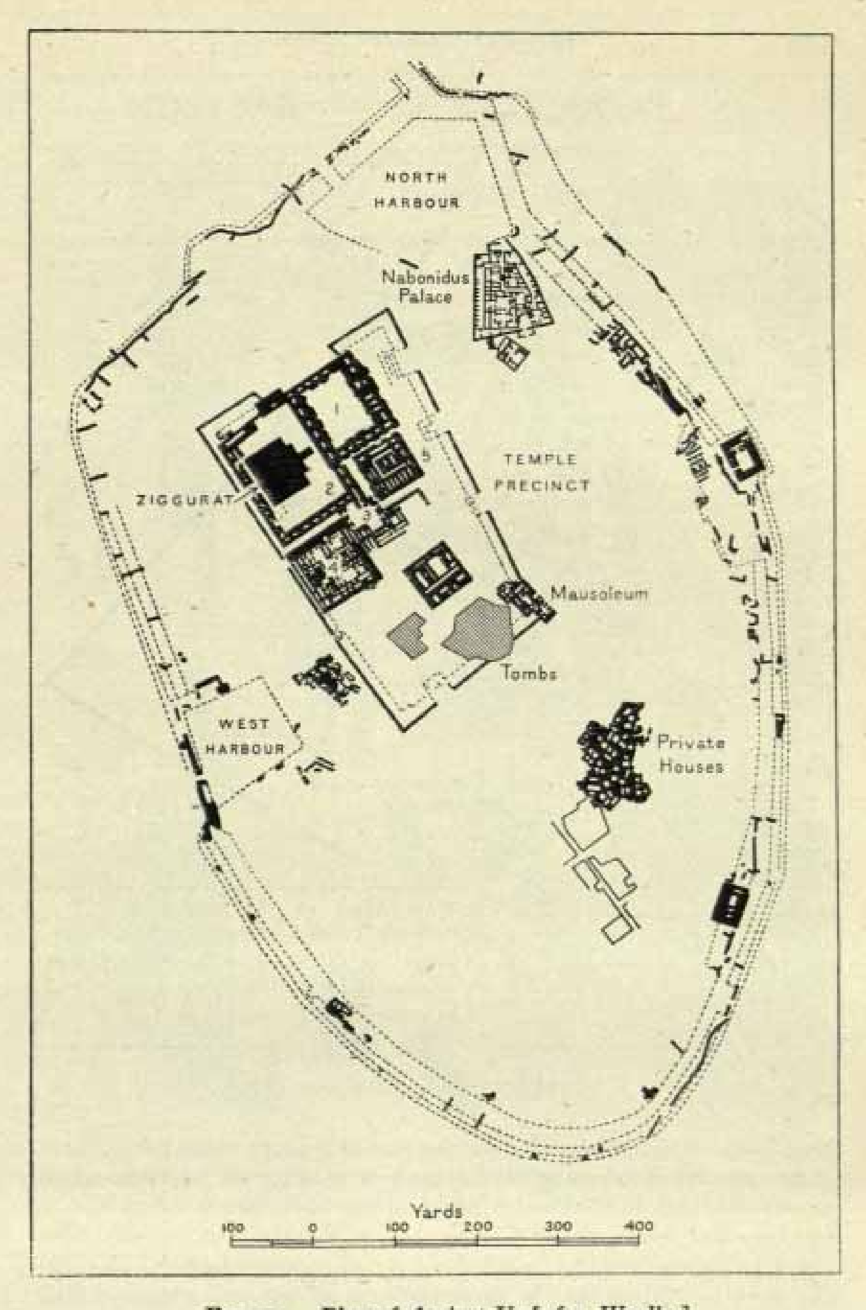


FIG. 92. *Plan of Ancient Ur* [*after Woolley*]

1. *Court of Nannar*; 2. *Temple of Nin-Gal*; 3. *E-Gig-Par*; 4. *Gig-Par-Ku*; 5. *E-Nun-Mahh*

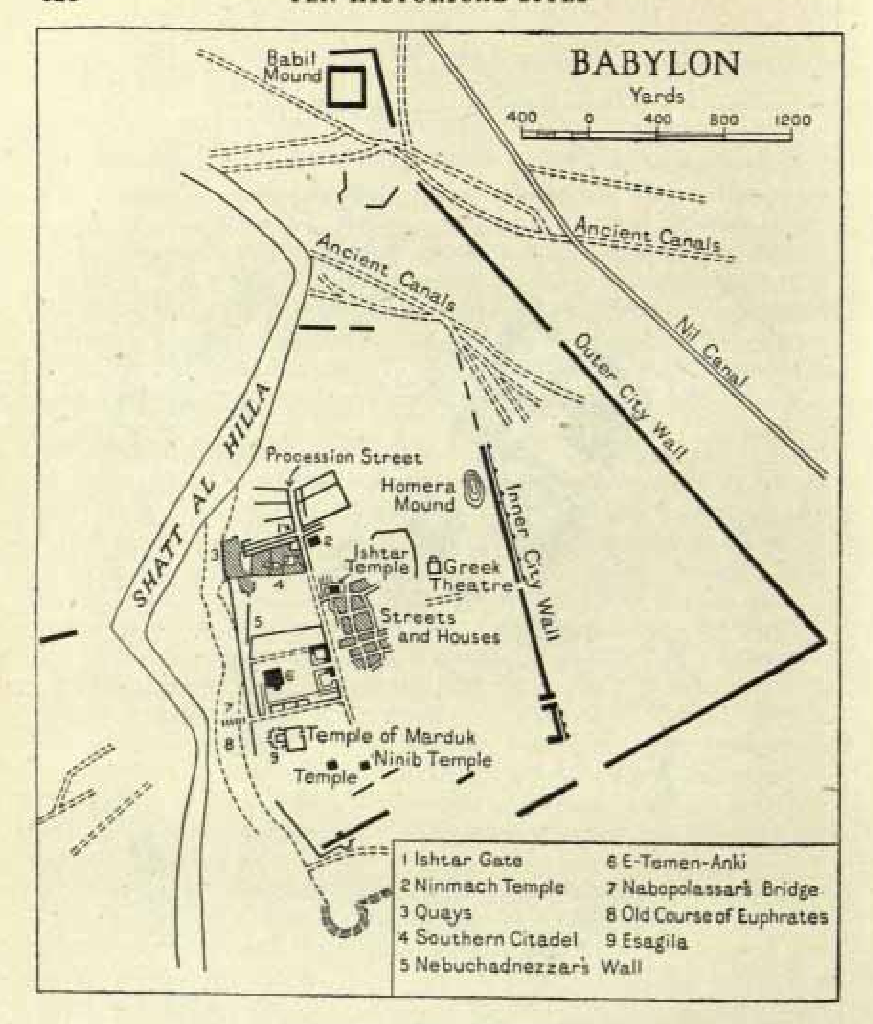


FIG. 93. *Plan of Babylon*

been restored (photo. 113). On the east and south sides the outlines of five temples of the usual Babylonian type (p. 223) can be traced which mostly date back to the third millennium but were remodelled in Kassite and Neo-Babylonian times: The temples of Nannar (1 in fig. 92), Nin-Gal (2), E-Gig-Par (3), Gig-Par-Ku (4) and E-Nun-Makh (5). E-Gig-Par, built by Nabonidus, incorporates the small but well-preserved Hall of Justice, E-Dub-Lal-Makh, rebuilt by the Kassite king Kurigalzu out of a former gateway of the ziggurat; its name means 'house-of-the-

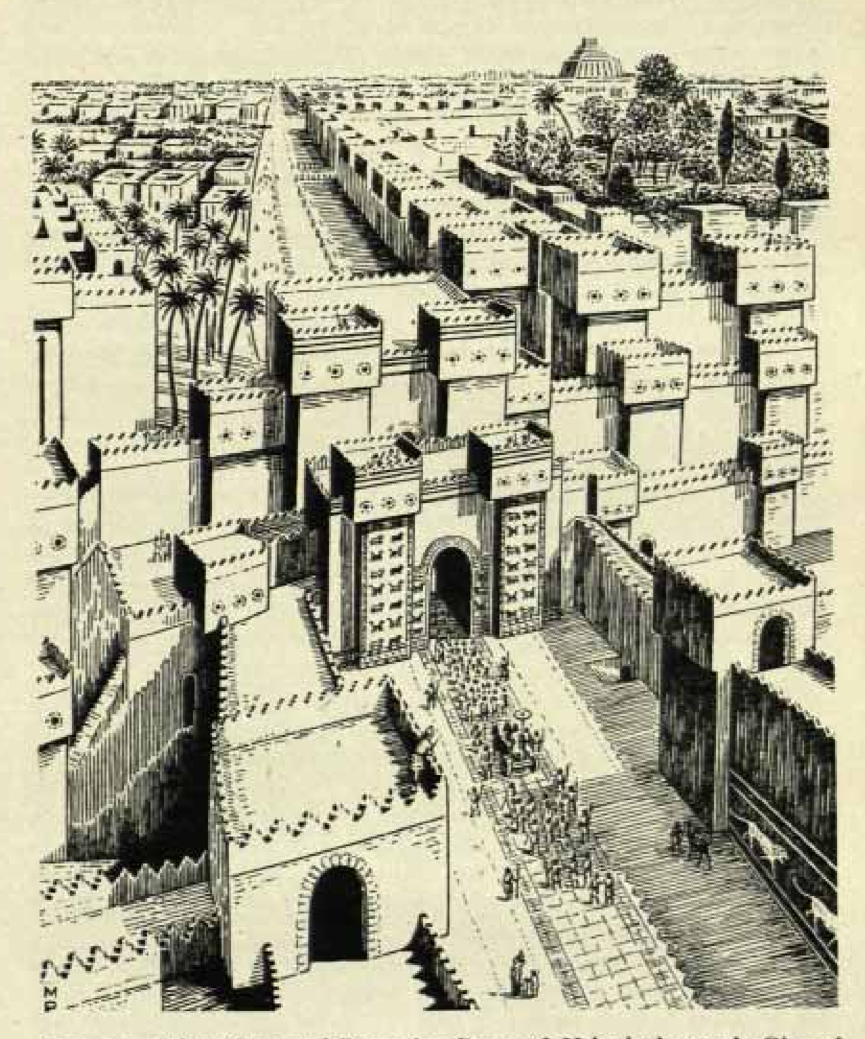


FIG. 94. *Ishtar Gate and Procession Street of Nebuchadnezzar's City of Babylon*, c. 565 B.C. *Southern Citadel and Palace beyond the gate on the right with the Ziggurat and Temple of Marduk in the distance*

platform-he-raised'. Much later it became the house of the Babylonian king Nabonidus' daughter, who was high priestess of Nannar. It consists of two chambers, the inner chamber being on the ziggurat terrace.

At the east corner of the temple precinct is the mausoleum of the Third

Dynasty king Shulgi (p. 209), consisting of groups of rooms like private houses, with staircases leading down to the vaulted tombs 26 feet below. Some rooms were decorated with gold-leaf panelling. Other vaulted and domed tombs of kings are to be found in the irregular cavity where the cemetery was excavated. The tomb of Abargi contained the bodies of soldiers, courtiers, and women, laid out in rows, who were slaughtered at the funeral.

East of the temple precinct is the palace of Nabonidus, surrounded by a strong wall, and adjoining it are the foundations of the so-called Harbour Temple. The area of private houses shows the town as it was in Abraham's day with its narrow lanes, numerous small shrines, and closely packed dwellings, within which the dead were buried.

A fine selection of the jewellery and precious objects and the apparatus of daily life discovered in the excavations are to be seen in the Iraqi Museum at Baghdad.

BABYLON (figs. 93, 94; photos. 97, 111, 112)

Babylon, Bab-Ilu, Gate of the Gods, was the capital of Lower Mesopotamia from the time of Hammurabi (*c.* 1770 B.C.) till the building of the Greek city of Seleucia in the third century B.C., after which it continued to exist for three centuries as a decaying provincial city. The buildings which have been excavated are mainly those of the Neo-Babylonian period (p. 219), when under Nebuchadnezzar II the city reached its greatest extent. The ruins, which were buried in a number of mounds in an area of $1 \times 2\frac{1}{2}$ miles for the inner city alone, are dispersed and confused, so that it is not easy to follow the plan of the city as a whole or to trace the ground plans of particular buildings. The effect of the excavation pits and trenches is aggravated by the fact that for many centuries Babylon served as a brick-field for the builders of Ctesiphon, Baghdad, and Hilla, whither great quantities of its fine kiln-burned bricks were carried away. The northern mound, Qasr, in particular, served as a brick quarry up to the present century; the robbery was not finally stopped until the British occupation.

Babylon lies between the Nil canal and the Euphrates and is protected by a series of great walls. The outer walls, parallel to the Nil canal on the north-east, then turning abruptly towards the Euphrates on the south-east, enclosed a huge triangle with the river as the third side, and were continued beyond the river to form a quadrilateral with a periphery of 11 miles. This Outer Wall is triple: the innermost mud-brick wall, 23 feet thick, stands 39 feet from the middle burnt-brick wall, 25 feet thick; the interspan was filled in with rubble and a carriageway ran on top encompassing the whole city: the outermost wall of burnt brick, 11 feet wide, simply reinforces the middle wall. Within stood the main town, roughly rectangular and walled by the Inner Wall, a double wall of two

sections, 21 feet and 12 feet wide with an interspan of 23 feet, called Imgur-bel and Nimitti-bel; on the north-east this wall is parallel to the railway which now cuts across the outer enclosure. Along the river front there were great quays, later built up into fortification walls, and the river was crossed by a brick bridge, the most ancient bridge of which traces survive in the world. Within the main town was the citadel area, the modern Qasr mound, containing palaces and temples protected by a third set of walls and reaching to an old course of the Euphrates on the west. South of the citadel, in Amran mound, there was the main temple area, originally distinct from the settlements of the citadel area. A third area is that of the lower Merkes mounds, east of Amran mound, containing the quarter of private dwellings with minor temples. At the northern extremity of the Outer Wall is the Babil mound, which alone preserves the original name; it contains a royal palace.

The most impressive excavations are in the citadel area; they are easily explored by a system of signposts and tracks, maintained by the Department of Antiquities, starting from the small museum, which is approached from the Baghdad–Hilla road. The citadel was entered by the Ishtar Gate, still standing to a great height with its reliefs of bulls, lions, and mythical Sirrush figures. Through the gate passes the paved Procession Street, marked by palace walls, along which the statues of the gods were taken on festal days. On the east side of the street by the Ishtar Gate there is the small Nin-Mach temple consisting of a vestibule and courtyard, inner shrine and priests' rooms. West of the street is the great series of palace buildings known as the Southern Citadel and entered from the street by the Beltis door. Three great courtyards have been cleared, with complexes of apartments and offices opening off them. On the south side of the third or Principal Courtyard is the throne room, the largest chamber in the citadel, 56 feet by 170, usually taken to be the scene of Belshazzar's banquet and the 'writing on the wall'. The walls of the Principal Courtyard were decorated with fine enamelled and patterned bricks in yellow and blue, black and white.

In the north-east corner of the Southern Citadel, close to the Ishtar Gate, there is a remarkable crypt of fourteen vaulted rooms or cells, all below the level of the palace floors. The presence of an unusual triple well has suggested that this is the substructure of the 'Hanging Gardens' which were thus 'hung up' as a roof-garden and watered from the wells.

The northern half of the Qasr mound contains the incompletely excavated Principal Citadel, the vast new walled palace built by Nebuchadnezzar II when he found the palace of the Southern Citadel too small for his court. In the north-east corner of it there is the stone Lion of Babylon, close to Procession Street. North again of the Principal Citadel is an extension known as the Northern Citadel, remarkable for its stone wall on the northern side, made of great blocks of limestone, the only stone building in Babylon. These palaces drew their water-supply from

an open canal 40 feet wide from which bricked conduits led to particular buildings. Farther south a narrower canal supplied the Southern Citadel.

E-Sagila, the temple of Bel-Marduk, the principal sanctuary of Babylonia, lies 68 feet below the surface of Amran mound. Its ziggurat, E-Temen-Anki, the 'tower of Babel', lies in a great enclosure 150 yards to the north. Their outlines were traced by tunnels and shafts and there is little to be seen, the ziggurat being marked by a deep depression which has long served as a brick pit to the Arabs. The temple of Ninib, E-Patutila, was excavated in the low ground 400 yards south-east of E-Sagila.

In the district still called Merkes or City, many private houses have been excavated and documents discovered in them dating back to Hammurabi's period. The streets as far as they have been traced, though not exactly regular, generally run straight and cross at right angles. The largest house contained three courtyards, each with a large room on the southern side and suites of small chambers ranged round the courts. In the north of Merkes there is the small temple of Ishtar of Agade with the usual ground plan of vestibule, central courtyard, shrine, and priests' rooms.

Between Merkes and the Inner Wall there is the ruined Greek theatre, a building of the Parthian period. It is of unusual design, since a colonnaded courtyard, probably a *Gymnasium* (p. 228), adjoins or backs on to the stage.

ASHUR, NINEVEH, AND KHORSABAD (photos. 35, 36, 99, 100)

Of the Assyrian cities only the excavations and ruins at Ashur are comparable to the finest sites of Babylonia. At Nineveh and at Khorsabad the earlier excavations were done by digging tunnels underground and sinking shafts, and more recent open diggings have been partly or wholly filled in.

At Ashur, the oldest of the Assyrian cities, on the right bank of the Tigris near Qala Sharqat, the walls, quays, and fortifications have been carefully cleared and stand to a good height. The huge ziggurat mound, E-Kharsag-Gal-Kurra, 'great mountain house of all lands', is an impressive feature dominating the whole area. There are temples and many royal palaces, similar in plan to those of Babylon and Ur. A part of the residential quarter has been excavated and contains brick houses of a single story of the Babylonian type. The town was surrounded by a great wall pierced by eight gates, and though it ceased to be a capital city when Shalmaneser III (p. 216) built Calah, it survived as a town to the Parthian period, and there are palaces and houses in the Graeco-Parthian style.

At Nineveh, opposite Mosul on the right bank of the Tigris, which has changed its course westward since Assyrian times, there is little to see beyond the line of outer and inner walls and the two great mounds of Kuyunjik and Nabi Yunis, topped by its mosque. The son of Tiglath-Pileser I made it his capital in *c.* 1080 B.C., but it was Sennacherib (705–

681 B.C.) and his successors who enlarged the city by building great palaces and a fifteen-gated wall $7\frac{1}{2}$ miles in circuit. Thus most of the finds date from the seventh century B.C. down to the destruction of the city (p. 219).

The Khosar stream (p. 96), which crossed the site then as now, was deflected into a swamp or lake outside the city. From the palaces of Sennacherib and Ashur-Banipal beneath the Kuyunjik mound there came an immense number of bas-reliefs sculptured on alabaster slabs, many of which are now in the British Museum. They covered the inside walls of the palaces, and Sir Henry Layard in his digging alone reckoned that he unearthed a total length of 9,880 feet of these tablets. From the royal libraries of these two kings have come thousands of clay cuneiform documents which have been invaluable in unravelling the past. Only sporadic digs have been possible in the mound of Nabi Yunis, but royal palaces have been identified. Recently (1941) heavy rains cleaned the fine bulls which guard the Gate of the Bulls in the north wall, which have been left in position.

Nineveh was supplied with water by a remarkable stone-paved canal over 50 miles long, which brought the water of the Gomel Su from Bavian, where the canal-head was controlled by stone sluice gates, to the Khosar channel near Nineveh. On the cliff at Bavian is a great relief and inscription celebrating the work, carved out of the bare rock. At Jerwan village the canal, 72 feet wide, crossed a ravine by a stone aqueduct 918 feet long with five pointed arches. The building of this canal took Sennacherib only fifteen months.

Khorsabad or Dur Shurrukin has more buildings to show than Nineveh, the nineteenth-century excavation having been recently continued. Everything dates from the reign of its founder Sargon (720–705 B.C.; p. 218), since the town did not survive him. The citadel includes the royal palace and a complex of temples and ziggurat. The wall was 82 feet thick; its seven gateways were guarded by fine bulls (photo. 99) and genii, now in the Baghdad Museum. In size the city is not comparable to Nineveh, its plan being a square with four walls each 4,920 feet long, enclosing about a square mile.

SELEUCIA AND CTESIPHON (fig. 95; photo. 117)

Though there is little to be seen to-day around the Arch of Ctesiphon, Seleucia, a great city the size of modern Baghdad or ancient Babylon, existed on the right bank of the old channel of the Tigris, at the junction of the Nahr Malik, from the time of Seleucus Nicator (301–280 B.C.; p. 229) to the third century A.D. It was faced by the royal city of Ctesiphon, first Parthian and later Sassanid, on the left bank from the first century B.C. onwards. Ctesiphon and its suburbs, seven towns in all, known to Arabs as the Madain, survived the Moslem conquest for several generations until their population was drawn away to Baghdad.

Formerly it was thought that all the mounds and ruins on the right

bank belonged to Seleucia, but it is now known that in Parthian and Sassanid times the Tigris channel was farther to the west and the greater part of Ctesiphon also lies on the present right bank. Seleucia has been located, originally by aerial photography and confirmed by later excavations, in the neighbourhood of Tel Umr (Tel Umar). Its core consisted

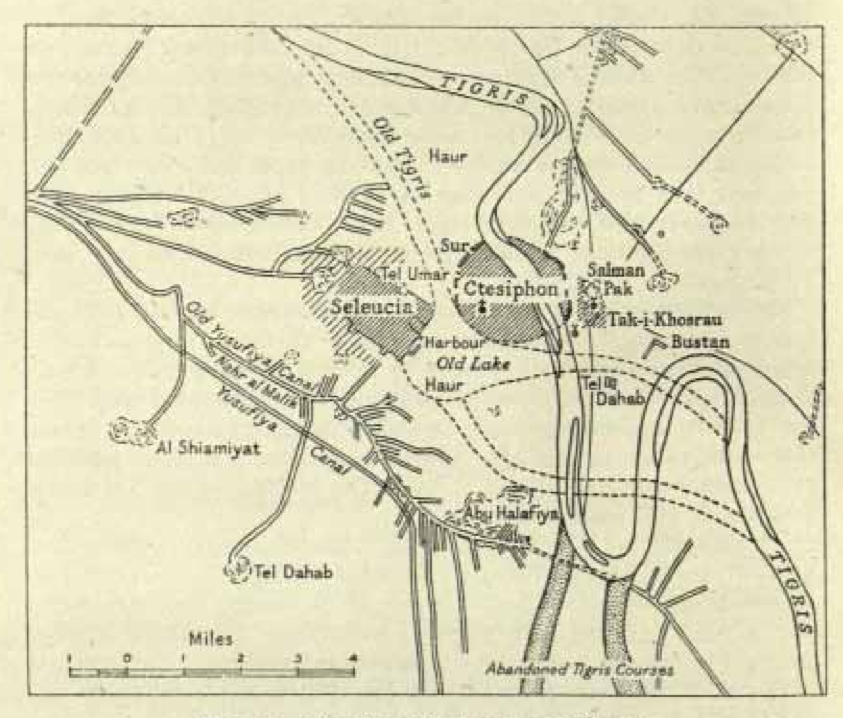


Fig. 95. *The sites of Seleucia and Ctesiphon*

of a town planned strictly with roads crossing at right angles; the residential district was in the centre flanked by two broad thoroughfares. Mounds still conceal the senate house, market-place, and *gymnasium* of the Greek city. The river port has been traced at the south-eastern end where the Tigris spread out into a lake. The principal temples apparently lay in a special quarter to the north. The mound of Tel Umr itself is an artificial construction apparently of Sassanid date, possibly a royal tomb or tower of unknown purpose.

On the left bank, away from the river, stands the great 'Arch of Ctesiphon', Tak-i-Kisra (Khosrau), the widest single-span vault of simple brickwork in the world, measuring 82 feet wide by 121½ feet high. The vaulted building was the banqueting and audience hall or liwan of the Sassanid kings, erected either by Sapor I or by Chosroes I, as its name

implies. Both wings of the façade survived until 1909, when the left wing collapsed. The vault was open to the air at the eastern end and had royal chambers on the west. This building was preserved because the Moslem conquerors used it as a mosque. On the right or western bank the city wall of Ctesiphon encloses an area of 1,000 acres and can be traced both

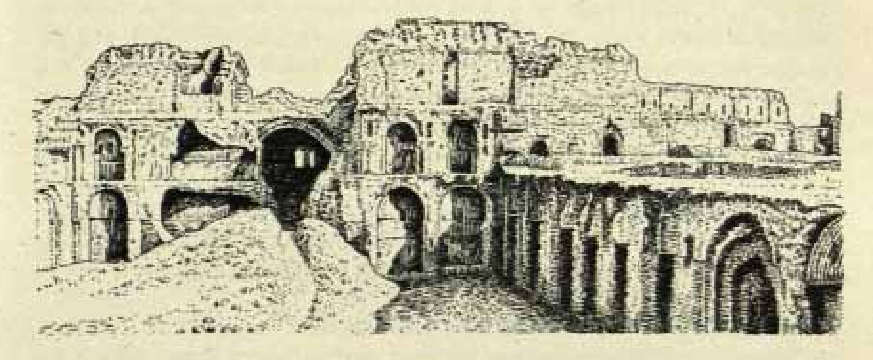


FIG. 96. *Ukhaidhir. The three-storied block seen from inside the central courtyard*

in the mound called Sur and elsewhere. A Christian church, possibly of the sixth century, has also been excavated in western Ctesiphon within the little mound of Qasr Bint al Qadi; it is roofed by a barrel vault, 29 feet wide, supported on a pillared wall.

HATRA (photos. 25, 116)

The ruins of Hatra contain the only extensive buildings in Iraq of Parthian date. The town itself only flourished for two or three centuries, when it guarded the direct caravan route across the Jazira from Parthian Ctesiphon to Roman Nisibis. After successfully defying the Roman Emperor Trajan in A.D. 116 and Severus in 198, it was finally taken and sacked after the end of the Parthian Empire by the Sassanid king Sapor I in about A.D. 245. The town, roughly quadrilateral and protected by a thick curving wall, with bastions every 170 yards, is over 3 miles in perimeter, and has four gates, the main gate being on the east. In the centre the ruined palace-temple of the Sun, itself fortified, consists of a range of seven open-fronted liwan halls. The sanctuary is a square vaulted building behind one of the halls, surrounded by a narrow vaulted passage and lit only by the door. The town contains many small and closely packed houses, which have been excavated, and many tombs.

UKHAIDHIR (figs. 31, 96; photo. 122)

Al Ukhaidhir, 'the little green place', built in the western desert, 28 miles south-west of Karbala at a point where water collects and vegetation grows

in winter, is the most immediately impressive ruin in Iraq. It is apparently a fortified palace rather than a fortress and may have been built either by one of the pre-Moslem Lakhmid princes of Hira (p. 237) or, as is now thought more probable, by a Moslem potentate in the Omayyad or early Abbasid period, possibly Isa ibn Musa, a nephew of the Caliph Mansur. Its style includes Byzantine and Sassanid elements, but a prayer niche or *mihrab* oriented towards Mecca in a room apparently used as a mosque indicates a date after the Moslem conquest. The building consists of a palace-complex in an enclosure 175 yards square protected by a buttressed wall with three gates. The north gate leads through a vestibule into a central courtyard, and facing the entrance there is an open-fronted liwan hall and other reception rooms. Around the courtyard and the liwan there are sets of apartments grouped round smaller courtyards. A staircase led up on one side of the courtyard to second and third stories. The mosque is on the right-hand side of the entrance, and offices on the left.

SAMARRA (photos. 10, 12, 120, 121, 123, 210)

The ruins of Samarra consist of the palaces, mosques, and civil town built by eight caliphs during the secession from Baghdad between A.D. 836 and 892, after which the town gradually became uninhabited save for the small settlement around the Shia shrine of modern Samarra (p. 550). Surfacing material was brought from the quarries and masons' yards of Syria, and even the Christian churches of Egypt were despoiled of columns, pavements, and ornaments for the decoration of the new capital. The town was built on the plateau escarpment above the Tigris valley, and irrigation canals and waterwheels created gardens out of a wilderness. The earliest buildings are the Friday Mosque, a few hundred yards from the walls of modern Samarra, and the palace of Mutasim, Bait al Khalifa. The Friday Mosque, of which the walls still stand, was of simple design, a great rectangular courtyard with three rows of pillars on each side and nine rows at the south end. Its minaret, the round Malwiya tower encircled by a spiral staircase, stood on a square base and was topped by a roof supported on eight columns, a miniature imitation of the Babylonian ziggurats.

Bait al Khalifa, the palace of Mutasim, is a huge complex of buildings alined along a central west–east axis. The entrance was the triple portico still standing on a terrace at the edge of the escarpment above the Tigris, and approached from below by a stairway. A long open courtyard led past the Caliph's apartments on the north and the harem on the south (connected by an underground passage) to the central hall or courtyard, off which the throne room opened on the north. In the centre of this court was a huge basin hewn from a single block of pink granite, now in the Arab Museum at Baghdad. Beyond a third open court or parade ground was the underground summer palace built as a vast sirdab. East of this again were the stables for the caliph's stud, the long polo ground and the grand-stand,

which looked both west over the polo ground and east over the race-course. The palace is flanked by the barracks of the Turkish guard on the north and rambling servants' quarters on the south.

Farther south is another caliphal palace, built less luxuriously, with the ruins of a great arch known as 'the camel'. The large octagonal enclosure called Qadisiya on the southernmost outskirts of old Samarra has not yet been excavated and its purpose is not properly known, though Arab geographers connect it with the manufacture of glass, some traces of which have been found.

North of the Bait al Khalifa is the palace of Mutawakkil and a second great mosque, called Abu Dulaf; it too has a spiral minaret, though smaller and more ruined than the Malwiya. Between Abu Dulaf and modern Samarra, along an avenue 80 feet broad, there were residential districts containing mansions, shops, and a prison, marked by its blank wall. Still standing are the lower courses of the walls of many houses which had both summer and winter apartments or else harem and diwan, and were generally panelled in Assyrian style with slabs of carved stone. Seen from the air the layout is regular and carefully planned. Near the main avenue there is the ruined mound of another grand-stand in the centre of a race-course which curved in four times towards it.

The Museum of Islamic Art at Baghdad contains many ornaments, carvings, and fine objects from the excavations at Samarra.

APPENDIX D

CHRONOLOGICAL TABLE

(The earlier dates are approximate)

Year	*Iraq*	*General History*	*Year*
B.C.			B.C.
EARLIEST CULTURES			
4500	Predynastic cultures	..	
3100	First Dynasties of Ur and Lagash	..	
2528	Sarrukin of Agade. First Empire in Mesopotamia	Semitic immigration into Palestine	2500
2300	City State of Ashur	..	
2277–2170	Third Dynasty of Ur	Hyksos invade Egypt	1800
BABYLON AND ASSYRIA			
1792–1750	Hammurabi. First Empire of Babylon. Shamsi-Adad I king of Ashur	18th Dynasty of Egypt	1600
1600–1400	Kassite primacy in Babylonia	Mitanni conquest of Jazira	c. 1600
1447–1412	Egyptian control of Mitanni	..	
1385–1345	Hittite control of Mitanni	..	
	Ashur-Uballit founds military system of Assyria	..	
1248–1241	Tukulti-Enurta I of Assyria conquers Mitanni and Babylonia	..	
1190–1180	Hittite invasions weaken Assyria	..	
1125	Nebuchadnezzar I revives power of Babylon	..	
1107	Tiglath-Pileser I of Assyria destroys Hittites and re-unites Mesopotamia	..	
1100–900	Aramean migrations disturb Middle East	King David captures Jerusalem	1000
883–824	Assyrian Empire established by Ashur-Nasirpal III and Shalmaneser III	Shalmaneser V destroys Israel	722
722	Merodach-Baladan, Chaldean king of Babylon	Sargon defeats Egypt and controls rising power of Media	c. 720
720–711	Sargon builds Dur Shurrukin (Khorsabad)	Sennacherib besieges Jerusalem	701
689	Sennacherib destroys Babylon	..	
679	Babylon rebuilt	..	
612	Babylonians and Medes destroy Assyria	Nebuchadnezzar defeats Egyptians at Carchemish	604
606	Neo-Babylonian Empire	Nebuchadnezzar takes Jerusalem and carries Jews into exile	596
	..	Cyrus the Persian ends Median monarchy	553
ACHAEMENID, PARTHIAN, AND SASSANID RULE			
539–538	Persian conquest of Babylon	Graeco-Persian wars	490–438
401	Xenophon's march	Philip of Macedon unites Greece	338
331	Alexander the Great overthrows Persians at Arbela	..	
301–280	Seleucus Nicator founds Greek cities	Rise of Roman power in Italy	c. 300
	..	Parthian kingdom established in Iran	200
	..	Roman Empire reaches Taurus	189
142–140	Parthians conquer Mesopotamia	Syria a Roman province	64
50 ?	Foundation of Ctesiphon	Parthians defeat Romans at Carrhae	53
	..	Birth of Christ	4
A.D.			A.D.
114	Trajan invades Mesopotamia	..	
164	Seleucia sacked by the Romans	Christianity preached at Edessa	165
197	Roman province of Northern Jazira	Persians rise against Parthians	208
224	Ctesiphon becomes Sassanid capital	Sassanid Empire established	224
	..	Constantine recognizes Christianity	323

Year	*Iraq*	*General History*	*Year*
A.D.			A.D.
400–500	Arab dynasties of Hira established	Birth of Mohammed	c.569
603–619	Chosroes II invades Asia Minor	Death of Mohammed	632
	..	Moslems conquer Syria	636
THE ARAB CALIPHATES			
637	Moslem conquest of Mesopotamia	Moslems reach Oxus	650
661	Murder of Ali near Najaf	Omayyad Caliphate begins	661
680	Death of Husain at battle of Karbala	Moslem conquest of Spain	713
750	Foundation of Abbasid Caliphate	..	
762–66	Mansur builds city of Baghdad	..	
786–809	Harun ar Rashid, Caliph	Eastern provinces gain independence	822–60
836	Capital moved to Samarra	Egypt secedes	868
869–83	Zanj rebellion	..	
892	Capital returns to Baghdad	..	
944	Hamdanid dynasty at Mosul	..	
945	Buwayhids conquer Iraq	Fatimids conquer Egypt	970
1055	Seljuk Turks supplant Buwayhids	First Crusade	1097–9
	..	Saladin combats Crusaders	1169–83
	..	Jenghiz Khan overruns Iranian plateau	1220
1258	Hulagu Khan conquers Iraq. End of Abbasid Caliphate	Ottoman expansion in Anatolia	1326
1393–1401	Invasions of Tamerlane	Sultan Mohammed II organizes Ottoman Empire	1451
1508	Ismail, Shah of Persia, takes Baghdad	Albuquerque at Ormuz	1514
OTTOMAN RULE			
1534	Ottoman conquest of Iraq	Portuguese defeat Ottoman fleet off Diu	1538
1623	Shah Abbas drives out Ottomans	..	
1638	Ottomans recover Iraq	..	
1643	First British factory at Basra	..	
1704–23	Hasan, first Mamluk Pasha of Baghdad	..	
1733–49	Invasions of Shah Nadir Quli	..	
1752	British trade supreme at Basra	Clive Governor of Bengal (1758–60; 1765–7)	1758–67
1800–4	Wahhabi raids	Reforms of Sultan Mahmud II	1809–39
1837	Chesney explores rivers by steamship	Tanzimat reforms at Istanbul	1840
1869–72	Governorship of Midhat Pasha	..	
1908	Willcocks's barrage begun. Arab nationalism first organized at Basra	Revolution of Young Turks	1908
1913–14	Turko-Persian Boundary Commission	..	
1914	British land at Fao	Great War	1914–18
1915–16	Siege of Kut	..	
1917	British take Baghdad	..	
1918	Turks evacuate Iraq	..	
MODERN IRAQ			
1920	Arab Revolt	Faisal, King of Syria	1920
1922	Mandate begins. Faisal becomes King of Iraq.	Mandates for Palestine and Transjordan (British) and Syria (French) begin. Independence of Egypt recognized.	1922
1924	Anglo-Iraqi treaty	Ibn Saud, King of the Hejaz	1925
1926	Settlement of Mosul problem	Anglo-Hejaz Treaty	1927
1932	End of Mandate. Second Anglo-Iraqi treaty	..	
1933	Assyrian troubles. Death of Faisal	Rise of Hitler	1933
1936	Army coup d'état	Rebellion in Palestine	1936–9
	..	World War begins	1939
1941	Rashid Ali's coup d'état. British occupy Iraq	Allied defeat in Greece. Germany attacks Russia. Syria and Persia occupied by Allies	1941
1943	Iraq declares war on Germany	General German defeat	1944

APPENDIX E

WEIGHTS AND MEASURES

THE metric system was adopted by law in 1931 and is now used by government departments; but, except for certain measures in the Baghdad province, the law has not been successfully enforced among the population, and it is probable that the old weights and measures will continue in use for some time to come, at least for private and local transactions.

As in most eastern countries, weights and measures vary from place to place. Weights are especially chaotic: a weight of the same name differs in different districts for the same commodity, and in the same town for different commodities.

WEIGHTS

The principal units of weight used throughout Iraq are the *hugga* (*hogga*) (*Stambul*), the *maund* (*mann*, *man*, or *batman*), the *wazna*, and the *taghar* (*tughar*).

The hugga (Stambul) has a fixed weight equivalent to 2 lb. 13 oz., but the weights of the maund, wazna, and taghar vary in different towns and for different commodities.

- 1 hugga (Stambul) = 2 lb. 13 oz., used for local produce sold at retail and wholesale rates.
- 1 maund of *imported produce* (tea, sugar, coffee, &c.)=6 hugga (Stambul) = 16 lb. approx.
- 1 maund of *local produce* varies from town to town and according to commodity (*below*).
- 1 wazna = 100 kilograms or 224 lb., in Sulaimaniya and Kirkuk, where it is only used in transactions with the Iraqi Government and not between local traders. In Baghdad it varies according to commodity (*below*).
- 1 taghar varies from 624 lb. to 4,480 lb. according to town and commodity (*below*).

Weights for Local Produce

Baghdad				*English equivalent*
1 hugga (Stambul)			=	2 lb. 13 oz.
1 maund of tea, coffee, metals	=	6 hugga (Stambul)	=	17 [16][1] lb.
1 maund of wool, gums	=	12½ ,, ,,	=	35 [35] ,,
1 wazna of wood, charcoal	=	50 ,, ,,	=	140 [139],,
1 wazna of grain, vegetables, dates, &c.	=	78 ,, ,,	=	219 [218],,
1 taghar			=	[4,480],,

[1] Weights in square brackets are those accepted as equivalents by local trading communities and are not necessarily mathematically accurate.

Basra

1 hugga (Stambul)	= 400 dirhams	= 2 lb. 13 oz.
1 waqiya (Basri)	= 1,000 "	= 7 lb.
1 maund (Basri)	= 24 waqiyas	= 168 "
1 maund of soap	= 4 hugga (Stambul)	= 12 "
1 maund of tea, coffee	= 6 " "	= 17 [16] lb.
1 maund of spices, meat	= 10 " "	= 28 "
1 maund of dates[1]	= 55 or 60 " "	= 155 or 168 "
1 maund of vegetables, fruit, rice, flour, ghi, wool, skins, &c.	= 60 " "	= 168 "
1 taghar of sand, gypsum	= 1,000 " "	= 2,812 [2,800] "
1 taghar of grain	= 1,200 " "	= 3,375 [3,360] "

English weights are also in use in Basra, for cereals, coal, iron, &c.:

1 ton	= 795 hugga (Stambul)	or 318 waqiya (Basri)
1 cwt.	= 39 " "	or 15 waqiya (Basri)
1 qr.	= 9 " "	or 3 " "
1 stone	= 4 " "	or 1 " "
1 lb.	= 146 dirhams	
1 oz.	= 9 "	

Sulaimaniya

1 hugga (Stambul)		= 2 lb. 13 oz.
1 hugga (Sulaimani)		= 7 lb. 8 oz.
1 maund of tea, sugar, coffee, &c.	= 6 hugga (Stambul)	= 17 [16] lb.
1 maund of honey, cheese, ghi, wool, &c.	= 17 " "	= 48 "
1 maund of tobacco		= [57] "
1 ruba of barley	= 7 hugga (Sulaimani)	= 52 "
1 ruba of wheat	= 9 " "	= 67 "
1 ruba of rice, beans, &c.	= 10 " "	= 75 "

Kirkuk

1 hugga (Stambul)		= 2 lb. 13 oz.
1 hugga (Kirkuk)	= 2 hugga (Stambul)	= 5½ lb.
1 maund	= 6 hugga (Kirkuk) or 12 hugga (Stambul)	= 34 "

Mosul

1 waqiya			= 4·8 oz.
1 hugga (Istana)	groceries and imported goods — tea, sugar, &c.	= 10 waqiyas	= 3 lb.
1 hugga (Attari)	groceries and imported goods — tea, sugar, &c.	= 12 "	= 3·6 "

[1] Dates are sold by weights which vary throughout Basra province. Between Hartha (15 miles north of Basra) and Kut az Zain (20 miles south-east of Basra) dates purchased direct from the landowner are weighed by the *kara kabira* (40 maunds of 55 hugga each = 6,202 lb.) or the *kara saghir* (20 maunds of 55 hugga each = 3,101 lb.). Between Kut az Zain and Fao the accepted rate is 60 hugga to the maund; the Iraqi Government also sells its dates on this basis.

1 hugga (Kabir) local produce	= 16 waqiyas	=	4·8 lb.
1 maund (or wazna) Istana	= 60 ,,	=	18 ,,
1 maund (or wazna) Attari	= 72 ,,	=	22 ,,
1 maund (or wazna) Kabir	= 104 ,,	=	31 ,,
1 taghar	= 20 maunds (Kabir)	=	620 [624] ,,
75 maunds (Kabir)		=	2,325 [2,240] ,,

Length

The principal unit of linear measure is the *dra* (cubit), which varies according to the article measured. The dra is divided into 4 *charaks* (quarters) or 16 *aqid*.

1 dra (Baghdad)	= 30 inches	used for cotton cloth.
1 dra (Basri)	= 36 ,,	used for cotton cloth.
1 dra (Halabi)	= 27 ,,	,, ,, silks, velvets, woollens.
1 dra (Shahi)	= 42 ,,	,, ,, carpets and in dealings with Persians.
1 dra (Mamari)	= 31½ ,,	,, ,, buildings and building land.

The metre and the English yard are being introduced gradually.

The Mosul metre = 36 inches.

Area

Throughout the country, 1 *mishara* = 0·62 acres.

In Basra 1 *jarib* (the area taken up by 100 palm-trees) = 0·92 acres (approx.).

APPENDIX F

AUTHORSHIP, AUTHORITIES, AND MAPS

AUTHORSHIP

This volume has been written by Lieut.-Colonel K. Mason (Professor of Geography, University of Oxford, formerly General Staff Officer for Intelligence in Mesopotamia), A. N. Sherwin-White (Fellow of St. John's College, Oxford), and Albert M. Hyamson (late Director of Immigration, Palestine). Contributions have been made by Dr. Norman White (late Indian Medical Service), Mr. F. Ballard (Royal Botanic Gardens, Kew), Mr. N. B. Kinnear (British Museum (Natural History)), Dr. J. V. Harrison (Department of Geology, University of Oxford, and late of the Anglo-Iranian Oil Company), and Miss H. F. Pickard-Cambridge, with Miss M. Maitland Wilson and Miss S. Notley as assistants. Much help has been given privately by Mr. Stewart Perowne. Several of these have travelled or been stationed in Iraq. Technical information and photographs have been supplied by the Foreign Office, Admiralty, War Office, Air Ministry, Meteorological Office, Royal Geographical Society, and British Museum, and by Mr. Evan R. Guest, late Inspecting Officer for Agriculture in Iraq, and other individuals. Maps and plans have been prepared in the drawing office of the Oxford sub-section under the direction of Mr. K. W. Hartland.

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SURVEY AND MAPS

The basis of all Iraq maps is the field work of Survey of India detachments carried out during the War of 1914–1918. Before 1914 there had been no survey; compilations only had been made from river charts and travellers' sketches. In the early stages of the war, large-scale surveys were made of the Basra region, and afterwards, at each forward advance, new surveys were begun from local bases and origins, to be adjusted later to methodical triangulation gradually brought up from the Basra base. The two main series of triangles along the Tigris and Euphrates were connected across the intervening desert, and extensions were made at the end of the war up the Tigris to Mosul, into Kurdistan, and up the Euphrates to link with the work of the Egyptian Survey at Aleppo.

During the war several temporary bases were measured and astro-latitudes were observed, but initial longitudes were approximate until after the occupation of Baghdad, when a series of accurate longitude operations was carried out at Fao, Baghdad, and Kermanshah, using wireless time-signals. The results were as follows:

Baghdad (old) Residency Flagstaff . .	44° 24′ 17·6″
Kermanshah Time Station . . .	47° 04′ 23·9″
Fao Telegraph Office, Roof Station . .	48° 28′ 55·0″

By the end of the war about 117,300 square miles had been surveyed in Mesopotamia and in west and north-west Persia, on scales of half an inch to a mile or larger. Maps in colours were published on the quarter-inch scale by the Survey of India at Calcutta, and these gradually superseded the provisional series of T.C. (Tigris Corps) operational maps compiled in the field or at Baghdad. The Survey of India remained responsible for the publication of this series until 1924, by which time the whole country, except the western and southern deserts, a part of the mountain region, and parts of the marsh area in southern Iraq, was covered by accurate maps. All material, including the zinc plates, was then handed over to the War Office, which assumed responsibility for future editions.

Unfortunately, retrenchment and the needs of economy have prevented continuous revision. The Survey Directorate of Iraq has mostly been engaged on large-scale surveys for land settlement and irrigation, and these as well as new roads and railways have not been judiciously added to the old maps, which have lost much in accuracy and clarity in consequence. Much material also seems to have been added from reports, and some is already out of date before the publication date of the new edition. Irrigation channels have been added, but the old ones which have been superseded are often left on the maps, so that the detail of the irrigation areas has lost much of its value. On the other hand, additional work has been carried out, particularly in desert areas, by astro-controlled traverse surveys; the region near the Turkish frontier was surveyed during the boundary

commission; and certain areas such as the Habbaniya lake, the Diyala, and the Hammar lake have been photographed from the air.

This old war-time quarter-inch series (I.D.R. 9002) remains the basis of topographical maps of the country. Some revision work has been carried

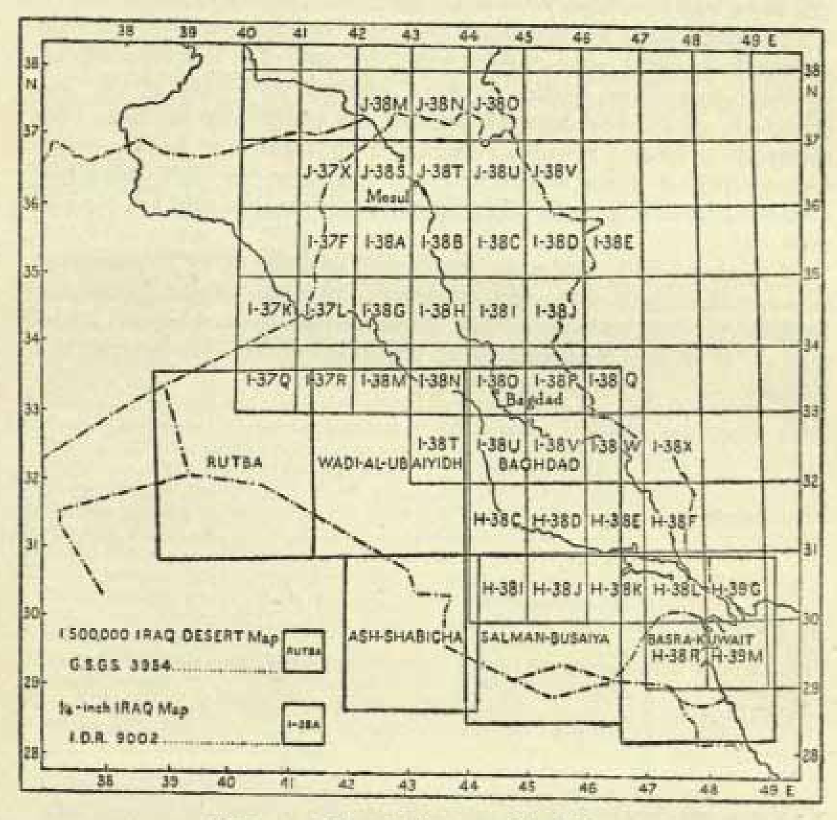


FIG. 97. *Index to Topographical Maps*

out since 1940 and the latest editions, printed between August 1940 and August 1942, are improvements on intermediate editions published between the two wars. They are, however, printed in a single colour, and, as a result, much of the detail is obscured and many names are difficult to read. The Index Gazetteer, published by the Survey Directorate of 'Paiforce' at Baghdad in 1943, is therefore almost indispensable. Each sheet covers a degree of latitude and longitude and is given its international number (fig. 97).

A few sheets of a new series (I.D.R. 9003) compiled and reproduced in colours on a scale of 1 : 100,000 by the 1st Indian Field Survey Company

in 1943 have become available during the later stages of writing this book. These are compiled from the most recent material available and are exceptionally clear. Unfortunately they cover at present a very small portion of the country in central and northern Iraq. It is to be hoped that this series will be completed to cover the whole country.

The Western and Southern Deserts, which were not covered by the old quarter-inch survey, have a special series on a scale of 1 : 500,000 compiled by the Geographical Section of the General Staff in and about 1934 (G.S.G.S. 3954). The latest edition includes material up to 1937. Five sheets are published in colours (sand and hill features in brown; water features in blue; roads, tracks, and spot heights in red; date-palms and cultivated areas in green). They appear to be accurate and are clear to read.

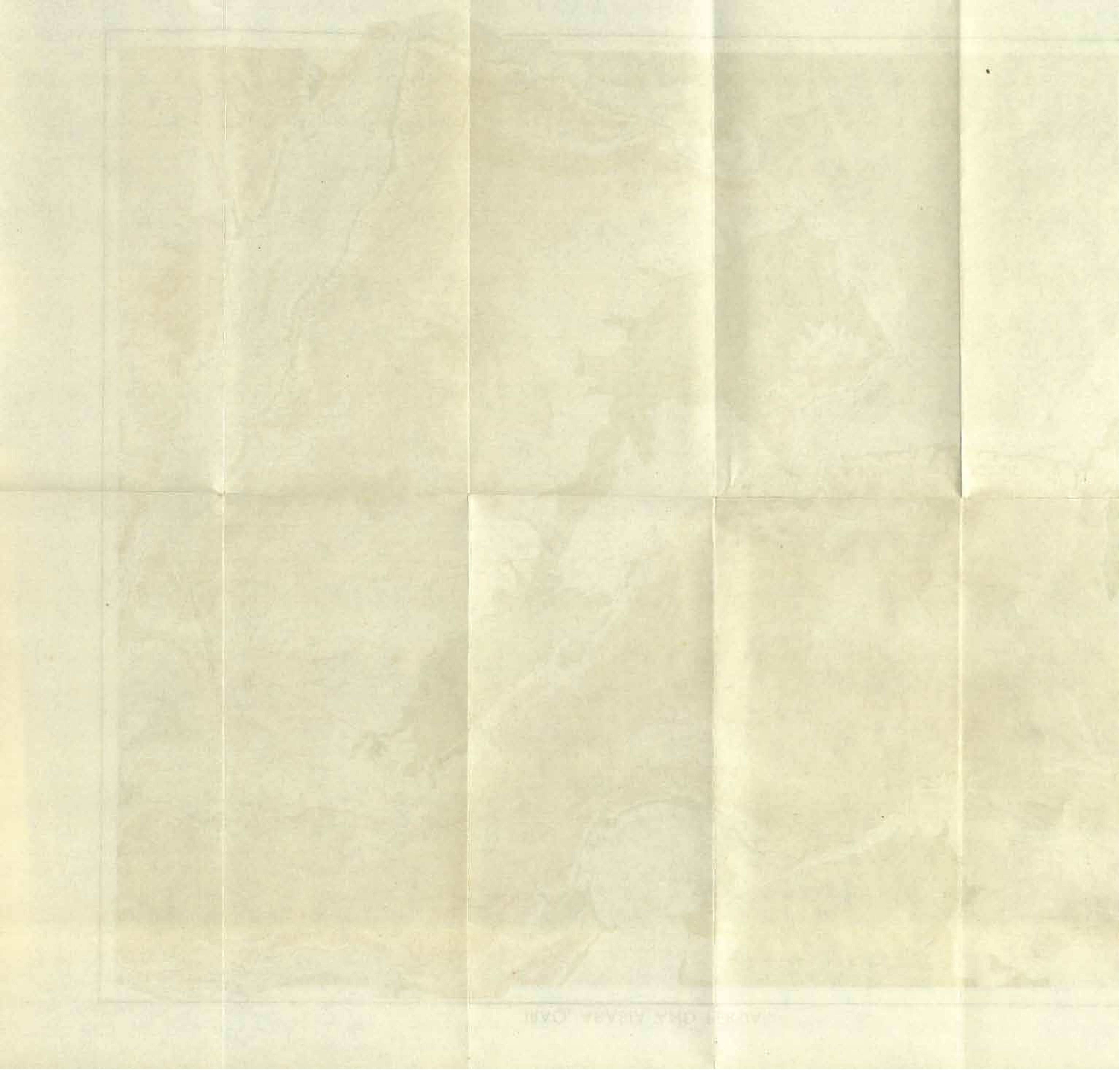
Of maps on smaller scales, the most useful are those of the International Series, 1 : 1,000,000. Iraq falls in sheets: Erzurum, Tabriz, Damascus, Baghdad, Al Jauf, and Basra. The last-named is extended beyond longitude 48° to include the area between the mouth of the Shatt al Arab and Kuwait.

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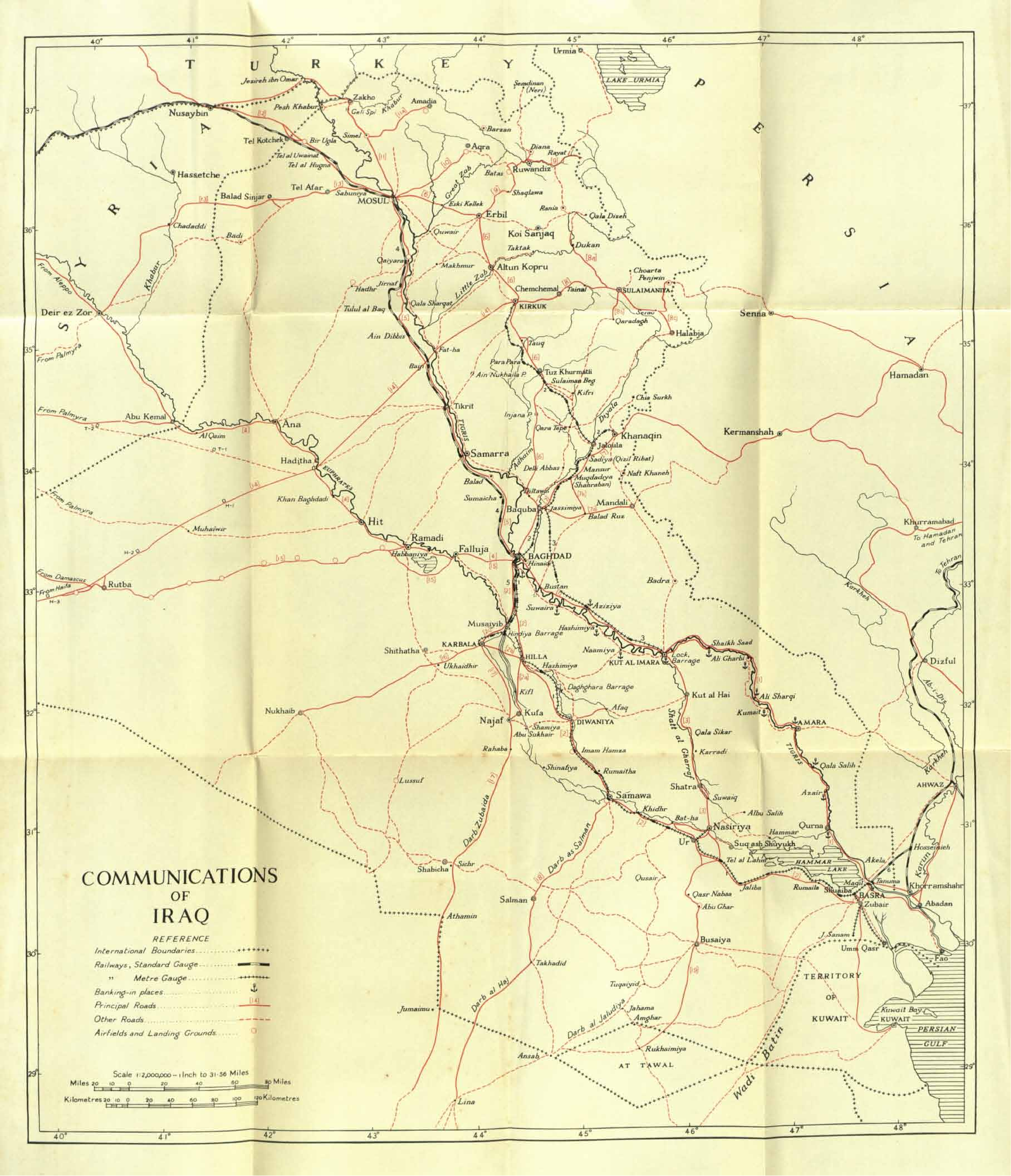
Additional references may also be given under the alternative names which are sometimes shown in brackets. To save space the first word, and sometimes the first two words have not been repeated; thus Ab-i-Diz is found under Ab-i-Abbassan, and Abu Kemal under Abu al Abbas. The only abbreviations used are p. (pass), R. (river), and r.s. (railway station). The index should be used in conjunction with the Table of Contents at the beginning of the volume, which is fully paged.



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